Vol. 176 No. 1 AMERICAN JANUARY, 1952

# Gas Journal

B 341157

FOR COMPLETE CONTROL—FOR DEPENDABLE CONTROL

Robertshaw **UNITROL** Grayson

THE LIBRARY OF CONGRESS SERIAL RECORD

FEB 25 1952

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Streamlines all Automatic Gas Water Heater controls in one simple unit

Special Aluminum Alloy for Gas Valve Body resists corrosion of sulphur-containing gases

Red Brass and Copper for parts immersed in water resist water corrosion

For the Water Heater Manufacturer, Unitrol provides valuable inventory reduction, lower production cost. For the Dealer, the saleability of national acceptance, with greatly simplified stocking of parts. For the consumer, the finest automatic gas hot water service that money can buy.

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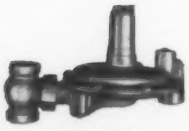
FLOW INDICATING METERS



SERVICE REGULATOR—173

No. 0, 1 and 2 DOMESTIC METERS

No. 00 DOMESTIC METER

SERVICE REGULATOR—107

APPLIANCE REGULATORS —086

No. 2½, 3 and 4 CAST IRON METERS

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**You Can RELY ON ROCKWELL**

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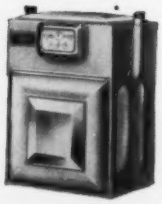
Take advantage of selecting from the only complete line of meters and regulators in the industry. Then there will be no compromise on performance, no question as to the suitability of any unit for the service. Rockwell products are backed by continuous research—constant designing, testing, improving. Because of this you always get better performance and the best value in any Rockwell meter or regulator you buy.



5 LT. and 10 LT. TIN METERS

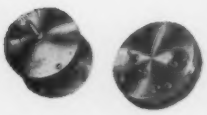
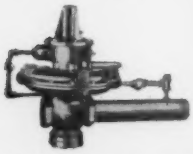
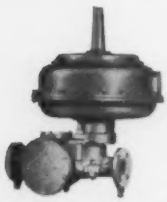


CHART DRIVES

No. 4½ and 5 PRESSED STEEL METERS



"1001" REGULATORS



LOW PRESSURE BALANCED VALVE REGULATORS—014

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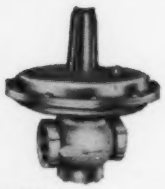

INDUSTRIAL REGULTORS—120

ORIFICE CHART INTEGRATORS

HIGH PRESSURE—015 PILOT LOADED REGULATORS

HIGH PRESSURE—015 INSTRUMENT CONTROLLED REGULATOR

HIGH PRESSURE—015 LEVER AND WEIGHT CONTROLLED REGULATORS

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POSITIVE, PERMANENT SEAL . . . with wear-resistant Neoprene gaskets. (Lead gaskets also available.)
ARMOR-PLATED STRAPS AND NUTS . . . hard-coated with cadmium to resist corrosion and deterioration.
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BUILT LIKE A BRIDGE . . . with engineered cantilever design for unequalled strength.
SHARP FULL THREADS . . . threaded and cadmium plated after bending to assure perfect fit.

## SERVICE CLAMPS

TO MEET ANY NEED . . . a full range of sizes . . . neoprene or lead gaskets . . . single or double straps. *Write for catalog with complete descriptions!*

# Permanent

Easily and quickly installed, Mueller Service Clamps become part of the pipe, providing year after year of trouble-free service.

With a firm grip on steel, wrought iron, cast iron or asbestos cement pipe, ruggedly-built Mueller Service Clamps withstand the hard knocks of high-pressure gas or water systems. Protective plating on clamp parts locks out corrosive elements.

**MUELLER CO.**

*Dependable Since 1857*

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the correct number . . .

the proper sequence . . .

## The right Odorant . . . the correct concentration . . . the proper equipment

Odorizing installations, like safe combinations, have individual characteristics. In fact, it is unusual to find any two installations with the same requirements. It is the purpose of the Natural Gas Odorizing Co., Inc. to supply all the specific needs for perfect gas odorization on each individual job.

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As a result of years of experience and research, our trained engineers are able to recommend the right odorant, the right concentration, and the right equipment for your particular requirements.

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captan

NATURAL GAS ODORIZING CO., INC.

P. O. Box 1645 HOUSTON, TEXAS

AMERICAN Gas Journal
ESTABLISHED 1859

VOLUME 176 JANUARY 1952 NUMBER 1

## This month...

It is a cheerful chore to list Hilding H. Carlson on the masthead as the new Managing Editor of AMERICAN GAS JOURNAL. Fellow-worker Carlson has most recently been advertising and promotion manager of Selas Corporation of America, in Philadelphia; prior to that he was an associate of our great and good friend the late E. Holley Poe. He by-lines our annual roundup of the industry story (page 14) and deftly lifts it out of the mimeographed handout class, an improvement that we have been contemplating for years without ever doing much about it.

• • •

All the back chapters of "American Gas Fundamentals," from January through November of 1951, have been reprinted and are now in the mails to new subscribers who have requested them. The postoffice being what it is these days, we implore our patient readers to wait a few days before writing to advise us that theirs have not yet been received. Judging from the volume of mail on the subject, we assume that all the impatient ones have already written at least once.

• • •

A letter from the energetic Clark Belden of New England Gas Association solicits our suggestions for subjects to be covered in that organization's annual meeting in March. We urged the New Englanders to come to grips with the problem of defining the responsibilities of utilities, manufacturers, distributors and dealers for customer service on gas appliances. We are happy to report that AGA has announced the personnel of its Customer Service Responsibility Committee (page 38), authorized by the AGA Executive Board last October. We shall record its progress, with approval we trust.

• • •

No avalanche, of course, but a mild little flurry of letters commended our editorial "Cheesecake and Corn" in the December issue. To those readers who wanted to see a copy of the leg art in question—to test the validity of our reactions, of course—we have turned a deaf ear. In the first place their sincerity is somewhat suspect; and they could get more lasting good, if that is what they want, out of an Esquire calendar.

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**Arthur Rohman · Western Editor** **John F. Falvey · Financial Editor**

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OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.

Based on the findings of a survey conducted by leading water works engineers.

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If your records show a cast iron main in ervice, laid a century or more ago, the lub invites you to send for a handsome ramed Certificate of Honorary Member-hip. Address Thomas F. Wolfe, Recording ecretary, Cast Iron Pipe Century Club, eoples Gas Bldg., Chicago 3, Illinois.

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York, Pennsylvania
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* 8 new members in 1951

# SERVES FOR CENTURIES

# CONSTRUCTION EQUIPMENT NEWS

**A Preview of Equipment That Will Help You On the Job**

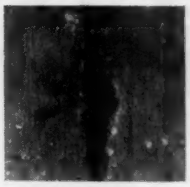
**PATCHES—TRENCHES SAWED FOR FLOOR—STREET REPAIR** — Saw concrete floors, walks or streets! Saw narrow slit trenches 1" wide for conduit or any width for utility lines. Eliminate jackhammer fractures beyond the straight, smooth sawed lines.—**Write Clipper Mfg. Co., Rm. 404, 2800 Warwick, Kansas City, Mo.**

**FLOORS, DRIVES, RUNWAYS EASILY CUT FOR REPAIRS**—Rail tunnels, rail and pipe trenches, air lines and machinery bases were cut in dense concrete with a Model C-130 Clipper Concrete Saw and CDS-20 Diamond Blade at the rate of 5' per minute—3" deep. Tremendous savings were claimed by the contractor in removal and replacement.—**Write Clipper Mfg. Co., Rm. 404, 2800 Warwick, Kansas City, Mo.**

**TRACK SAW NOW CUTS LARGEST STONE, TRANSITE, TERRA COTTA** — By placing C-15 Clipper Concrete Saw on tracks, a Cleveland contractor cut limestone veneer units from 15'x7"x15" quarry lengths. In addition to large, bulky shapes this model is efficient and dustless for inside patch and trench work.- -**Write Clipper Mfg. Co., Rm. 404, 2800 Warwick, Kansas City, Mo.**

**CONTRACTION JOINTS NOW SAWED**—Floors, walks, drives and runways now poured continuously (reduces bulkheading!) Then joints are sawed to eliminate hand forming and costly spalling.—**Clipper Mfg. Co., Rm. 404, 2800 Warwick, Kansas City, Mo.**

**STUDIES OF SAWED JOINTS PROVE VIRTUAL ELIMINATION OF SPALLING** — Highway transverse joints sawed 2" deep are devoid of spalling after 1½ years in contrast to heavy spalling in a few weeks on formed joints, according to State tests.



*Typical spalling after few weeks heavy traffic.*

*Sawed joints on same highway after 1½ years.*


## It's Done Easier, Faster, More Economical when you SAW BEFORE BREAKING with CLIPPER CONCRETE SAWS

### CONCRETE EVIDENCE

Ever watch a Clipper Concrete Saw in action?... If not you've missed something... for the downright SPEED, EASE and SMOOTHNESS of operation is really something to see!

You'll recognize that Clipper Concrete Saws are designed for SIMPLE, FOOLPROOF DUSTLESS performance. Dashboard controls — perfect balance — floating three point blade suspension* — and "job-rated" power plants...all combined for concrete and asphalt cutting far beyond anyones expectations.

*A pivoting front axle keeps the blade straight in the cut even on rough surfaces — stops binding — stops excessive blade costs.

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1. Clipper "No Bind" Floating Three Point Suspension Automatically protects blade.
B
2. Positive Screw Feed Instant control raises or lowers blade smooth, easy
C
3. Adjustable Depth Lock Set this handy stop for whatever depth desired.
D
4. Patented Spray Control Its value is measured in increased Blade Life.
MODEL C130 Power-Packed

### FREE TRIAL...

The outstanding policy of FREE TRIAL has been in effect since Clipper invented the World's First Masonry Saw many years ago! Clipper Concrete Saws are GUARANTEED to: Provide—regardless of hardness ...the Fastest Cut...at the Lowest Cost ...with the Greatest Ease...Anytime... Anywhere! You be the judge ... TRY A CLIPPER ON FREE TRIAL!

**Experience Proves A Concrete Saw Must Have These Clipper Features**

Clipper — "Cuts Right Thru"

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"COAST-TO-COAST"

Serving the World as the World's Largest Manufacturer of Masonry Saws

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• A complete selection of blade types for every sawing job ... SAW asphalt or concrete floors, or SAW contraction joints in fresh poured slabs.

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SOLD ONLY DIRECT FROM FACTORY

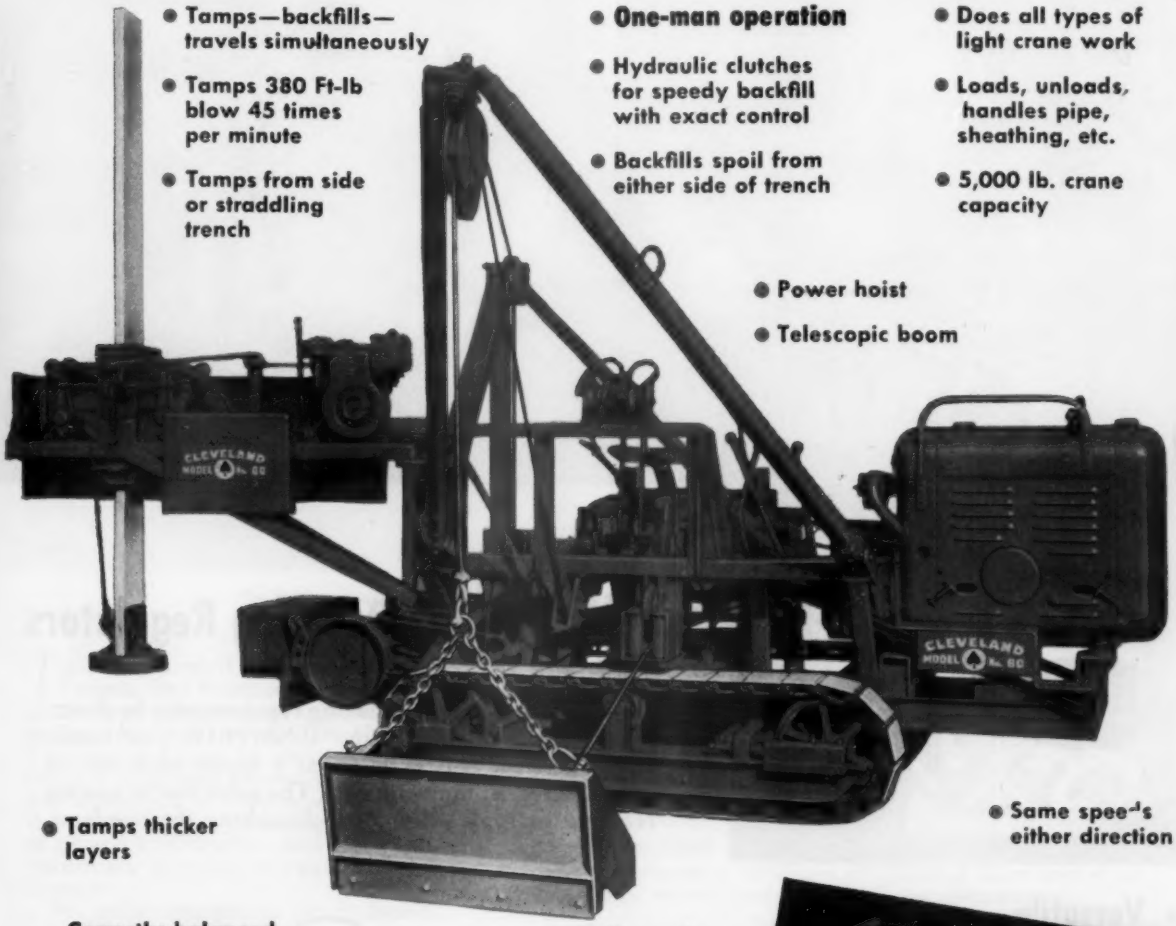
# NOW...do all three trench-completion jobs with one machine

# CLEVELAND MODEL 80

*the only machine of its kind!*

## IT TAMPS! IT BACKFILLS! IT LAYS PIPE!

- Tamps—backfills—travels simultaneously
- Tamps 380 Ft-lb blow 45 times per minute
- Tamps from side or straddling trench
- **One-man operation**
- Hydraulic clutches for speedy backfill with exact control
- Backfills spoil from either side of trench
- Does all types of light crane work
- Loads, unloads, handles pipe, sheathing, etc.
- 5,000 lb. crane capacity
- Power hoist
- Telescopic boom




- Tamps thicker layers
- Same speeds either direction
- Correctly balanced steel backfill board
- Full crawler maneuverability

### A MACHINE THAT BELONGS IN YOUR '52 PLANS

Get more work for your budget dollar! The "80" is time-tested and job-proved—for tamping, backfilling, pipe handling and other types of trench completion work. Get complete information on it *now!*

*Available Now!*

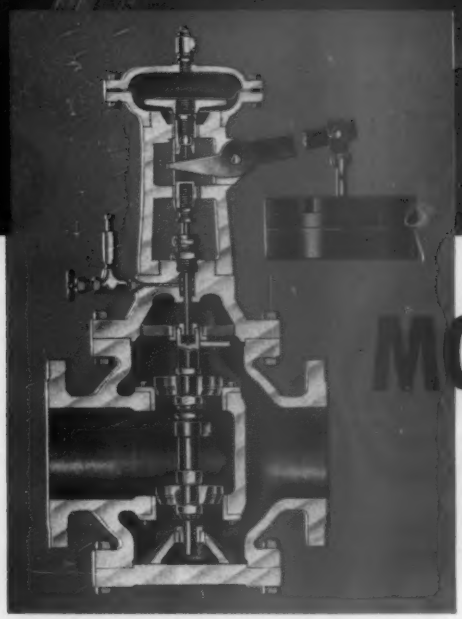
Order now for prompt delivery, clean up your back-end problems before winter sets in. The "80" is available 2 ways . . .

WITH OR WITHOUT TAMPER

SEE YOUR LOCAL DISTRIBUTOR OR CONTACT FACTORY DIRECT

**THE CLEVELAND TRENCHER CO.** 20100 ST. CLAIR AVE. CLEVELAND 17, OHIO

FOR *Loyal Performance*



# MODEL 44—Reducing Regulators

This versatile pressure-reducing regulator may be direct-operated, pilot-loaded with "SENSITROL", or instrument-operated. It is excellent as a motor valve for use with differential-limit controls. The valve can be quickly removed or replaced without disturbing the regulator.

- **Versatile**
- **Valve and Seats Removable**
- **Valve Types and Sizes Interchangeable**
- **Valve Adjustment Made Easy**
- **Compact Design**
- **High Safety Factor**

ACCURATE CP MFG CO. DEPENDABLE

**Chaplin-Fulton**
MANUFACTURING COMPANY
Pittsburgh 25, Pennsylvania

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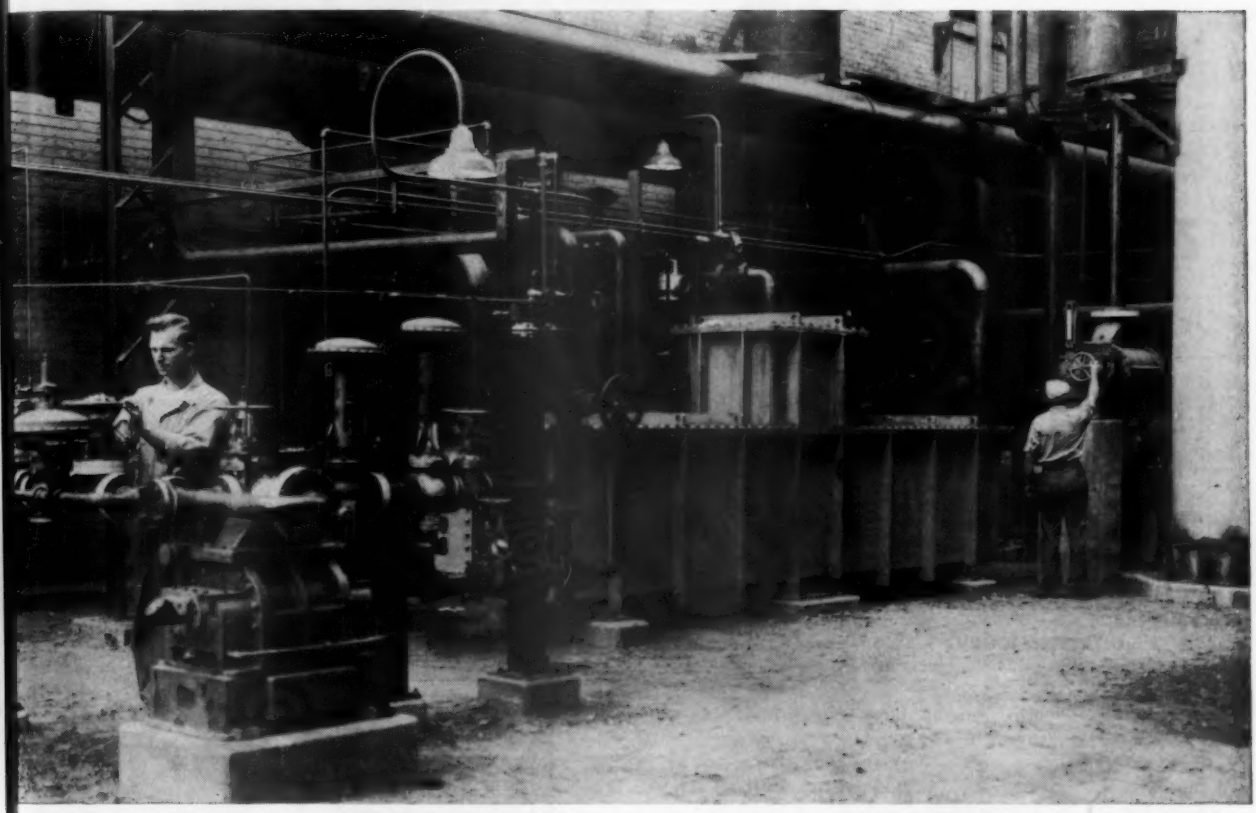
# For standby service...for peak-load periods...

## *the Koppers-Hasche Furnace*



The Koppers-Hasche Furnace pictured here is now in operation at an eastern utility.

THE Koppers-Hasche Reforming Process and Furnace are the result of 19 years of intensive experimental and development work. The Hasche Furnace is *unique in design*, being a thermal reforming process in which no free lampblack or carbon is produced. Gas is produced by passing a mixture of air and hydrocarbon feed stock continuously through a regenerative furnace.

For utility companies which distribute natural gas—for industrial plants which use natural gas—the Hasche Furnace is ideal for standby service. It is always ready to pinch hit in the event of temporary failure of the natural gas supply. This furnace is also valuable in helping utilities meet peak loads.

**Here are some of the principal features of the Hasche Furnace:**

**INVESTMENT COST IS LOW.** Extreme simplicity of process makes initial investment low, per unit of thermal output. Savings are effected not only on furnace cost, but also on auxiliaries. Unit is compact, requiring little ground space. Can be installed outdoors, saving cost of protective housing.

**OPERATING COST IS LOW.** Units are entirely automatic in operation, requiring minimum of operating labor and supervision. Few moving parts, thus reducing maintenance.

**EFFICIENCY IS HIGH.** Thermal efficiency is higher than any other gas-producing equipment, ranging upward of 98% with some types of gases.

**GAS IS INTERCHANGEABLE.** This furnace produces gas that is interchangeable with straight natural gas.

*Feel free to write us for further information about the Koppers-Hasche Furnace. Your inquiry will receive prompt attention.*

KOPPERS

**KOPPERS COMPANY, INC.**

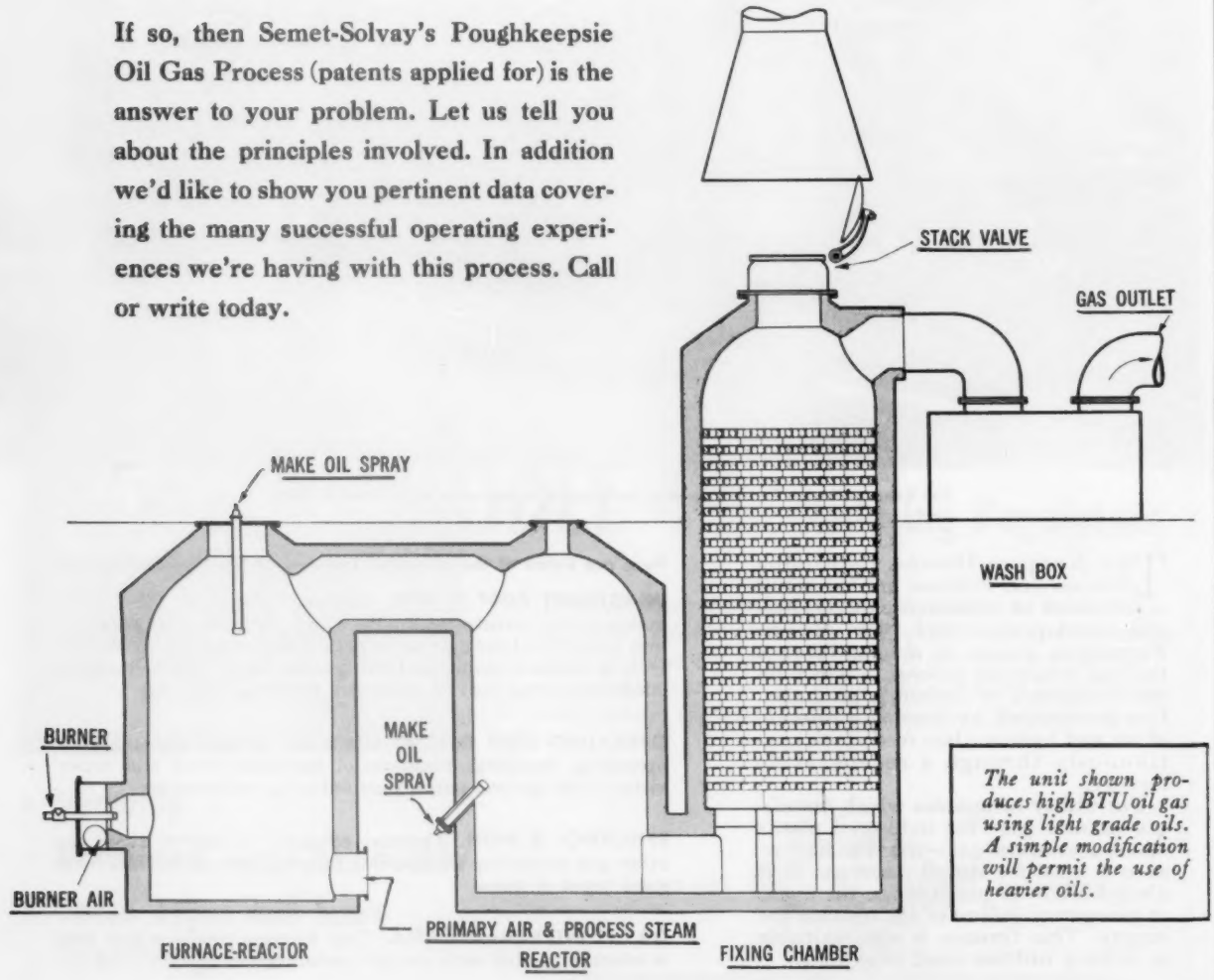
**Engineering and Construction Division, Pittsburgh 19, Pa.**

# IS OIL GAS CONVERSION

# your problem?

**Are you looking for a practical and economical non-regenerative oil gas conversion? One which can handle most any grade of gas making oil?**

**If so, then Semet-Solvay's Poughkeepsie Oil Gas Process (patents applied for) is the answer to your problem. Let us tell you about the principles involved. In addition we'd like to show you pertinent data covering the many successful operating experiences we're having with this process. Call or write today.**




*The unit shown produces high BTU oil gas using light grade oils. A simple modification will permit the use of heavier oils.*

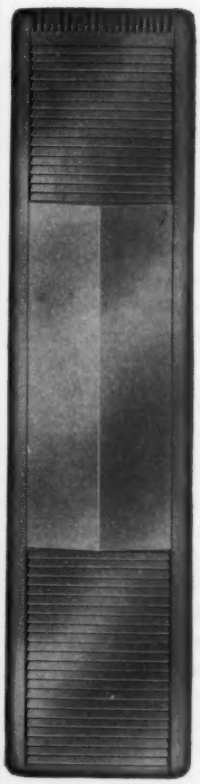
**SEMET-SOLVAY** ENGINEERING DIVISION
40 RECTOR ST., NEW YORK 6, N.Y.
ALLIED CHEMICAL & DYE CORPORATION

# NO PEAK TO SALES HEIGHTS

WITH

# EMPIRE

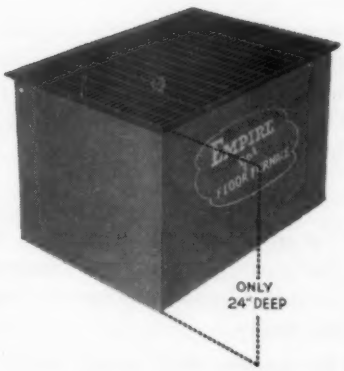
## GAS HEATING AND COOKING APPLIANCES



### EMPIRE RECESSED HEATING SYSTEMS

The latest in Modern Design and Zone-Controlled Heat, saves valuable space, fits in the wall, does not interfere with placement of furniture . . . Provides complete automatic Control of Heat at an amazingly low cost. Ideal for homes with concrete floors or second story rooms.

AGA APPROVED




### EMPIRE GAS FLOOR FURNACES

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EMPIRE STOVE COMPANY

BELLEVILLE, ILLINOIS

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With these changing times—and changing BTU's—it is well to consider the advantages inherent in new production processes.

Natural gas, if it enters your plant and distribution system, can and will continue to be of great benefit. Then your first important consideration will be standby facilities. There are Gasmaco oil gas processes and other Gasmaco methods for this purpose.

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**CLEVELAND 10, OHIO**

**THE GAS MACHINERY CO. (Canada) Ltd., Hamilton, Ontario**

# Editorial:

## Cooperation Without Coddling

BEFORE the psychologists, the economists, marketing advisors, and management consultants crowded into the act, the basic principles of merchandising were simply to sell the goods, give honest value, collect the cash and move on to the next prospect. Those who grasped these simple truths often rose rapidly from pushcart peddler to sole proprietor of the Bon Ton Department Store; and the ones who moved fastest were those who sold the most in the shortest time, collected what was due them and got on with the greatest dispatch to new customers.

Somehow in the sunshine of latter day enlightenment, the gas industry seems to have either lost track of or discarded the humble homilies on which selling success was originally based. Even the early gas companies knew better. They knew that if they didn't shag out and sell those fishtail burners, or the new fangled Welsbach incandescent gas lights, they didn't sell any gas. And when a few pioneers came along and suggested that this vapour should be used for cooking food they jumped on the band wagon and began to sell gas ranges.

Eventually electricity, arch interloper of its day, came along and crowded out the lighting load, but by that time the gas industry had moved up into a faster league and a few intrepid pioneers were suggesting that gas could be used for heating as well as for lighting and cooking.

Historically every new advancement, every new use, every refinement in the domestic utilization of gas has had to be pioneered, supported and promoted by the gas companies themselves. Management knew that they couldn't sell gas until some appliance was sold to burn gas; and management also knew that if its own men didn't get out and sell, nobody else would.

All of the convention forensics, the analytical treatises in the trade press, and the carefully worded resolutions about dealer cooperation to the contrary, we still believe that those basic principles obtain, and we still believe that if the gas companies don't get out and sell their merchandise, it won't be sold—not in the volume that it has to be sold for gas to retain its preeminence as the base load domestic fuel.

Before any of our industry leaders reach for their burning pens to accuse us of discounting or decrying the dealer, let us hasten to assure them that we are all for him. Call it dealer cooperation, or dealer participation or whatever you will, dealer activity is not only a valuable adjunct to gas appliance merchandising, it is an indispensable part of any realistic selling program.

Dealer cooperation is one thing; but dealer coddling is another. Of late it seems that the industry has softened up to the place where there is a lamentable confusion of those two terms. The only basic justification for a dealer program is the end that the gas company and the dealers together will sell more and better appliances than either could sell alone.

For a gas company to tear into the retail market, offering better terms than an independent retailer can offer, selling merchandise cheaper, or attempting to crush and smother dealer operations by the sheer force of manpower is a shortsighted and suicidal policy.

But it is equally shortsighted to become so imbued with a morbid fear of what a few dealers might think that all merchandising is either stopped, or allowed to trail off into some sort of vague and undefinable activity that it leads to every conceivable objective except that of actually closing the sale.

Aggressive gas appliance dealers do not worry about gas company competition. They realize that the impetus that is given to all gas appliance selling by well operated utility merchandising is in their interest too.

In communities where there is a healthy sales climate established for gas appliances, by utility promotion, display and merchandising, the dealers don't have to be importuned and cajoled into speaking up for gas. Gas equipment is easier to sell because the utility conditions the public mind and awakens public enthusiasm for modern gas equipment.

Numerous manufacturers, who at one time granted exclusive utility franchises in an area, have altered their policies and now insist that they have dealer representation as well. They have hoped, and they have been justified in expecting, that the gas utility would accept this policy and continue to cooperate, and handle the same manufacturers' lines.

Most of the obvious avenues that are open for the utilities to cooperate with appliance dealers have been pointed out in recommendations by American Gas Association and in joint policy statements of Gas Appliance Manufacturers Association and various retail groups. But they all manage to beg the question of whether or not the gas utilities should merchandise.

Our convictions in the matter, then, can be summed up in simple terms: There is no legitimate policy of utility dealer cooperation that cannot be effectively pursued with the gas company actively merchandising its appliances along with the dealer. And there is no long range policy of selling appliances that can be relied on, over the years in good times and bad, that *does not* embrace utility merchandising.

Elliott Taylor

# Coordination of Gas in National Pattern To be Factor in 1952 Trends

by Hilding H. Carlson

WHEN AN INDUSTRY has reached a gross valuation stature of $9-billions and is ranked sixth in the nation's industrial economy—

*when* that industry is sprawled over the entire map of the country and reaching into the still-open areas at a prodigious yearly rate—

*when* new sources of the industry's product are being discovered at a rate that is faster than the spectacular increase in consumer-demand—

*when* research and development programs are continuously and actively seeking newer and better applications of that industry's product—

*when* the industry has direct need for and uses the brains and brawn of at least all the principal professions and skills—

*when those and other aspects* of the gas industry are considered it is clearly obvious that it must and, indeed, does have complex and vital interdependencies with other industries, large and small. We view those interdependencies with high respect and, in fact, view them as responsibilities.

So, on this first day of the year, we ask, *what of the gas industry?*

We need, for an adequate answer, somewhat more than a mirror-look at the year's activities and something more than proper-enough pronouncements of high hopes. The economics of the gas industry, with its size, its relationships, its driving forces and its potentials, are welded to the overall industrial economy, but they are welded also to the rather determinative economics of some individual major industries.

All recognized business indices touched new peaks during 1951 and the gas industry certainly moved along with those indicators, if not ahead of them.

But, the inflationary factors must be considered together with those indicators of business levels, and their effects are shown with graphic emphasis in the sharply upturned indices of prices and wages. Certainly, no one who buys raw materials, equipment or labor services for the gas industry will relax after a simple review of revenues-customers-gas deliveries, however delightful the comparison of 1951 with previous years.

## Military spending: upward-bound

There are those who speak and write of the future with definite symptoms of blindness as they express their confidence in the levelling of the inflationary curve and the continuation of high business prosperity.

Rather than that, we think, as business prosperity continues to rise the inflationary factors will remain solidly built into our economic structure.

Defense spending, the most influential of all inflationary factors, is scheduled to reach the annual rate of $60-billions or $65-billions by June. The 1951 rate was $35-billions.

What mind can foretell the eventual consequence?

There is ample justification for assuming that with or without the Korean war, 1952 will be a year—all of it—of direct and indirect military spending. Now, more than ever before, the gas industry would seem to benefit by directing close and continuing attention to the movements, to the requirements, to the futures of other members of the American industrial family.

In general, expectations for 1952 are predominantly optimistic with respect to production volumes, employment and income. Continuing and, in some instances, increasing shortages of materials will be experienced. Price and wage pressures will be definitely upward. Capital expenditures will go to new highs.

## View with alarm, point with pride

This is not too early to recognize that 1952 will include a presidential election, with appropriate gesturing by those most closely concerned with the outcome. Industry will get both the indignant finger of scorn and the big hand; the utility industry always has been an excellent subject for both groups of performers with the usual confusion resulting in the mind of the mass-voter. Incidentally, the gas industry has had and might well get more highly individualized attention of this sort.

The Secretary of the Treasury closed 1951 with a brief but profound statement that the defense program could be financed "without danger to our economy." He observed that the nation "must be willing to bear a very high level of taxation for a considerable period to come."

On the same day, the chairman of the House Appropriations Committee placed among his 1952 objectives: holding appropriations for the next fiscal year within estimated receipts; avoidance of enlargement of the public debt; making further tax increases unnecessary.

## Steel industry big factor

The gas industry and the steel industry have a close interdependency; each buys from the other.

There are substantial expectations that the demand for steel may be met in 1952. Two principal factors are involved in the prediction that production will show a three per cent rise this year: first, the availability of raw materials, that includes the return of scrap to the mills; second, freedom from strikes.

Despite the truce, steel labor is not going to forget its thirst for higher wages. And, also despite government economists' bland assurances that the steel industry can pay an increase without raising prices, those prices will rise.

The ever-widening circles of influence of steel, the product and its prices, will reach across our entire industrial economy, especially when we hear John L. Lewis clearing his throat, backstage. The circles of influence of steel will hit the gas industry as soon as they start moving!

Operating at 101 per cent of capacity, American steel mills produced 105 million tons last year, an increase of 8.5 per cent over 1950.

The steel industry's program includes a vast enlargement of production facilities. The three million ton production-expansion during 1951 brought the total since the start of the Korean war to 6.5 million tons. Further expansion during this year is expected to add more than ten million tons of production capacity. 1953 schedules, as yet incomplete, include more than two million tons of capacity, bringing the total annual

rate of steel production for the entire industry to 120 million tons in 1953.

The gas industry's interests in this program are directed toward the additional pipe mill capacity and additional capacity for plate, sheet and structural shapes, all used in building gas utilization equipment; at the same time there will be the greater opportunity to apply gas in new steel processing techniques. Both interests, both potentials, are substantial.

### Construction to drop

Despite the unfilled demand for gas service, on which the industry can cushion itself with currently adequate comfort, past and future construction activities have an importance from which there is no hiding.

Thomas S. Holden

This year will end with a drop of sixteen per cent in the construction dollar volume, if Messrs. Thomas S. Holden and Clyde Shute, president and assistant vice-president of F. W. Dodge Corporation, are correct. And, they are nearly always correct in their estimates.

The estimated sixteen per cent drop should be considered together with what is expected to be a "moderate" further rise in the prices of construction materials.

Some of the construction projects for which the National Production Authority refused allotments in late-1951 were deferred, not dropped, and will be reconsidered and approved during this year.

The 1952 construction forecast, in a comparison with 1951-performance, summarizes in this manner: The number of residential units will be down nineteen per cent . . . commercial building floor space, down 37 per cent . . . manufacturing and industrial space, down three per cent . . . educational space, down nine per cent . . . hospital-and-institution space, down seventeen per cent . . . public buildings, down 22 per cent.

"It seems obvious that the fourth-quarter dip in contract volume will carry over into 1952," Messrs. Holden and Shute commented. "It might even continue through to the middle of the year. If the anticipated improvement in the metals situation and consequent easing of controls take place, there should be a definite uptrend of contract volume in the second half of 1952."

The Dodge corporation preview of construction includes the expectation that the steel supply situation will be eased during the first half of the year and notes that overall fourth-quarter requirements in 1951 were "considerably overestimated for purposes of the Controlled Materials Plan and that reports of current and prospective shortages have been exaggerated."

The gas industry interests in construction activities, extending from the processing of raw materials, processing of direct construction materials and equipment, through the manufacture of gas utilization equipment and the eventual sale of gas, represent another huge dollar-volume interdependency of the industry that implies an important responsibility.

### Records came up with oil, gas

In 1951, the petroleum industry, the gas industry's twin at the production level, was able to more-than-meet the greatest demand in its history.

Frank M. Porter

Frank M. Porter, president, American Petroleum Institute, in commenting on the new peaks established by his industry included natural gas and natural gas liquids.

Gross production of natural gas in 1951 was estimated by API at 9.8 trillion cubic feet, an increase of 1.3 trillion cubic feet over the 1950 production figure.

Liquefied petroleum gas sales during 1951 were estimated at 3.9 billion gallons, a half-billion increase over the year before. The LP gas gallonages include sales for domestic purposes, enrichment of manufactured gas, industrial space heating, industrial heat processing, automotive fuel and as a component in synthetic rubber and chemical solvents.

"To make sure that adequate supplies . . . will continue . . . now and in the future, the nation's oil men had their busiest year ever in drilling operations," Mr. Porter revealed. "This intensive drilling program, which is of paramount importance to . . . the United States, was carried out in face of steel shortages, increasing costs and other handicaps."

The 44,495 oil and gas wells completed last year, included 3,026 gas wells. Only three years in the 1939-1950 period had greater numbers of completed gas wells.

Manufacturers of heat processing equipment, advanced the utilization of gas by the petroleum industry during the year. The application of closely controlled radiant gas heat in petroleum heaters had the effect of reviving the petroleum industry's interest in thermal cracking just after its displacement by catalytic cracking had been forecast.

### Utility sales top $2-billions

Utility gas sales were reported by American Gas Association to have passed the $2-billion level during 1951. More customers were connected to gas utility lines than in any other year, more gas was sold and more money was spent for plant and equipment.

George F. Mitchell

Revenues from utility gas sales amounted to $2,205,370,000, an increase of 13.2 per cent from $1,948,002,000, the previous-high sales record for 1950. Natural gas accounted for the largest part of the total, $1,649,050,000; manufactured and mixed gases were down to $535,210,000; LP gas sold by the utilities amounted to $21,110,000.

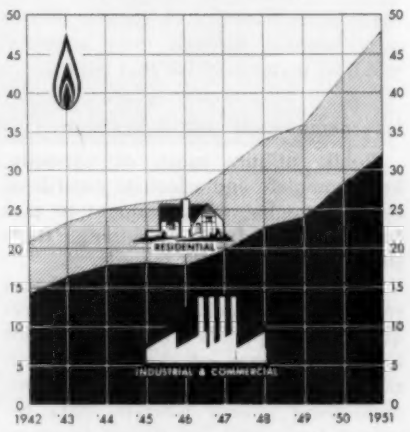
Residential, commercial and industrial customers of the gas utilities reached a total of 25,392,000 in 1951, according to AGA. The customer-increase over the corresponding 1950 total amounts to 3.7 per cent.

More than 17-million customers were receiving natural gas in 1951, a 14.2 per cent increase over 1950. The number of customers receiving manufactured and mixed gases dropped 13.4 per cent during the year just ended. The decrease, says an AGA summary, reflects the effects of change-overs by several large utilities to natural gas distribution. AGA statistics now consider manufactured

*(Continued on page 40)*

**UTILITY GAS SALES**

(Billions of Therms)



# Modernized Customer Contact System Accelerates Service in Houston

A CUSTOMER service center, designed to give instant and personalized service to any of the 140,000 consumers of the Houston division of United Gas Corporation has recently been completed after an eight-month transition period from the old counter-and-window type of transaction to a new system whereby customers are able to complete any normal business with the company on one call, without delay, and through contact with only a single trained customer relations employee.

Prior to the changeover, an extensive analysis was made of the company's facilities and methods of handling customer contacts. It was found that there were two major sources of delay in handling requests or inquiries; one was in the business office itself, where every contact was over the counter, and the other was at the telephone switchboard where all incoming calls were handled through one main board.

Where all contacts in the division were over the counter, it was customary for customers to stand in line, awaiting their turn to speak to an employee, whether the business at hand was that of paying a bill, making application for service, seeking information on rates or any other type of service request.

Under the new system, in the business office of the division there are sixteen neat, well-furnished reception desks, each manned, if the occasion requires it, by a competent and specially trained customer contact clerk, available to handle the complete details of any request for service or information. Only the routine payment of regular bills is now handled through three cashiers' windows maintained for that purpose.

*Photos courtesy* United Gas Log

Well furnished and competently staffed reception desks in the newly remodelled business office of United Gas Corporation's Houston division, where customer contact has been put on a personal and individual basis.

### Interdepartment communication

Public utilities must, of necessity, keep complete and adequate records of every customer, which amount to case histories including everything from street address to credit records.

Surveys and investigations have shown repeatedly that delays in handling requests or complaints are occasioned not by the adequacy of the records, but rather by the inadequacy of the communication system whereby data required from any department is transmitted to the employee at the point of customer contact.

To overcome this United Gas, in cooperation with the manufacturers of Dictograph intercommunication equipment, worked out a new system, with 57 Dictograph stations installed in headquarters of the Houston division supplementing or supplanting the telephone for interdepartmental use. On each of the reception desks a Dictograph enables the clerk to speak with any department of the company and obtain whatever information may be required on a moment's notice.

The delicate and sometimes embarrassing matter of a customer's credit record is handled by means of a special device, which eliminates discussion of the details within the hearing of an applicant for new or change of address service. As the routine forms are being filled out, the name and former address of the customer are phoned to the case history department. If his credit is good, a green flag appears on the interviewing clerk's desk unit and the transaction is completed with no necessity for any further questions. If the applicant's record is found to be bad, a red flag appears and he is then referred to the credit department.

The office floor is equipped with comfortable chairs, for those who may have to wait briefly during rush hours, and a receptionist is on duty to see that they are waited on in proper turn, and that they receive prompt and courteous attention.

United Gas Corporation believes that the new reception system for personal callers has met with unquestioned popularity from the customers. Each, regardless of his business, gets prompt individual attention from one point of contact. Previously long waits in line have been eliminated.

In remodelling and streamlining its system for handling incoming telephone calls, the Houston division has developed, in cooperation with the telephone company, a unique system which is said to be one of the first of its kind in the United States.

In the new Houston telephone directory two numbers are listed under

Telephone clerks at work in the telephone service center. Six horseshoe file desks, like the one shown, house records of 150,000 customers.

United Gas Corporation. They read:

United Gas Corp.—
Customers service gas
Trouble and repair calls
Applications for gas service
Transfer and change in service
Inquiries about bills, accounts
General information
All customers call Blackstone 0271

United Gas Corp.
General offices, all departments
Atwood 5111

In this way, all customer requests are automatically screened out of incoming business calls that relate to other company business. Blackstone is a direct number to the division's new telephone center. When a customer dials, he is answered by a trained customer contact clerk ready to handle any need, in a manner similar to that of the clerks on duty at the reception desks.

Where a switchboard operator formerly had to take each call, determine the customer's need and decide which department to refer him to, the caller now needs dial but one number, and talks to one person only.

### Telephone center

The telephone center is at present served by eleven trunk lines, with an eventual capacity of thirty as they may become needed.

Incoming calls go to any one of twelve special telephone order turrets, each of which has an outlet for every trunk line in service. Each is staffed by a specially trained telephone service clerk competent to handle any type of request.

The turrets are located on telephone tables, and on each of the six service record unit desks where the street and street number files of all customers are kept. The latter are horseshoe type desks, with a chair in the slot for the clerk who handles the files, and stools on the outer rim for the use of clerks working from the order turret.

The horseshoe desk, or tub file, is another improvement in service center equipment that has speeded up reference to service location records.

Under the old system these records were kept in a series of eight drawer vertical file cabinets, each with a capacity of from ten to twelve thousand records. Only one person could refer to a cabinet at a time, and it was everyone's job to do the refiling.

Under the new system six tub desks replace fourteen vertical files, and as many as seven persons can refer to locations in a tub file at one time. The centrally located clerk maintains and refiles the records and also gives out information over the intercom to the personal service clerks in the business office.

The telephone clerks, however, refer directly to the records themselves. An incoming call may be answered by any one of the telephone clerks on duty. The

Order dispatchers for the entire city are now stationed in the telephone center, from where they dispatch the division's service and repair crews.

same signal flashes on all twelve of the turrets, and may be answered from any one of them. A thirteenth turret is used only by supervisors and to help train new clerks.

Each telephone clerk carries a portable telephone set composed of mouthpiece, earphone, plug extension, and a ten-ounce packet that fits on the belt. This enables them to use any of the twelve turrets, giving the system extreme flexibility. If a call is answered on one turret and the clerk needs to consult a street record he places the call on "hold," goes to the service record unit desk that holds the record he wants, finds his information and renews his conversation with the customer from the turret at that desk. When he finishes with the record he places it back on the record unit desk, and it is refiled by the unit clerk. At present the six service record unit desks house approximately 150,000 records, catalogued by street name and street number.

On another floor complete case histories of every customer are kept on file with Dictograph stations located at each of the eight file units there.

Telephone tables are equipped with all the necessary forms and order blanks, just as are the reception desks in the business office. If a clerk needs to consult a supervisor or another department, he merely places the call on "hold" and uses a nearby Dictograph station to contact his intracompany party.

Incoming calls into the center averaged between 700 and 800 per day during the first month. That number probably will rise, but in the meantime more and more clerks are being trained to man the telephone order turrets to handle a heavier load of customer requests.

### Order dispatching

Operations will be further expedited by order dispatchers for the city, now also located in the telephone center. Various types of orders are prepared in the customer service center, and within a few minutes are ready for dispatching direct to the customer servicemen by the order dispatchers. Formerly, messengers delivered the orders to the distribution department, three miles away. Dispatching time will be cut further in the near future when radio dispatching equipment is installed.

If one of the telephone clerks receives a report of a leak or other trouble demanding immediate action, the request is in the hands of the dispatcher within a minute. He can then contact a repair crew and send it directly to the scene. Remote control equipment is being installed so the dispatchers in the telephone center can regulate pressure at each of the city gates.

During the transition period, while the new equipment was being installed and new procedures standardized, employees who were to be responsible for its smooth functioning were given an intensive eighty-hour training program.

Clerks at the telephone tables receive incoming calls direct from the multiple trunk lines. Dictograph equipment speeds inter-office communications.

Contact clerks were familiarized not only with the equipment and its use, but also with ever phase of customer service. Every forseeable question that a customer might ask was raised and the

*(Continued on page 34)*

# FINANCIAL CRYSTAL BALL HAZY

## Institutional Money Will Not Be Easy

by John F. Falvey

IN KEEPING with previous custom, AMERICAN GAS JOURNAL has been peering into the financial crystal ball in an effort to see just what might be in store for the utility industry in general and for the gas industry in particular during the coming year.

There are cross-currents in abundance, but several factors show clearly.

Institutional money will not be easy to get. The insurance companies for the most part already have loaned from two-thirds to three-fourths of the money which they expect to make available in 1952. The utility company needing money will not be able to get help from this source until the third quarter of the year.

For the first six to nine months of 1952 a tightening, looked for in the money market, will cause continuance of the trend toward higher interest rates.

Government bonds keep weakening and to sell long term bonds of this type would entail a four point loss for the institutions. "This is enough to make one think long and hard before selling them," one of the chief insurance company lending officers states.

Under this weakening process for Government bonds, one and all agree, the institutions have greater difficulty in selling present holdings, they then take a greater loss, more and more companies are restricted in their new money flow and all are hampered in their ability to switch funds from one situation to another.

Compounding the situation for utility companies is the estimate just released by the Securities and Exchange Commission that first quarter 1952 capital expenditures of corporations, while falling somewhat short of the final quarter of 1951, are expected to be eighteen per cent higher than in the first three months a year ago.

Qualified observers expect the bond market to sag a bit further and then to stabilize, with somewhat higher prices in prospect toward the middle of the year. By then, they reason, the important insurance companies will not have the demand on them which exists at present and will be able to come into the market for a greater volume of new securities.

On this score it might be mentioned in passing that the insurance companies were out of the market for a good part of 1951 and yet the utility and industrial companies were able to sell bonds.

On balance, the expectation is that bond prices may tend to lower and yields to go higher, but not much in either case. Bonds with high grade rating (A 1 and AA) are expected to stay within a range of 3.25 per cent-to-3.30 per cent, and bonds with an A rating within a range of 3.60 per cent-to-3.65 per cent.

Would that it were possible to be even half as definite in trying to forecast the probable, or even possible, trend of operating returns for the utilities, especially the gas companies!

One would have no better luck here, however, than in endeavoring to guess where the wheel will stop at any carnival stand. The cost of new facilities is climbing, with no end in sight; companies are in the midst of an ever-climbing inflation spiral, with both gas costs and other operating expenses vying for the honors of attaining the highest rate of climb.

Although Tennessee Gas Transmission Company has obtained Federal Power Commission sanction for an approximately $11 million of annual rate increases out of about $18 million originally asked, at least another $100 million annually is awaiting commission action. No break in this log jam will be witnessed for a few months to come; meanwhile there is no letdown in the rate of new applications.

About the best the companies can look for is the expiration of the six months' waiting time to put the rate increases into effect under bond, and then hope that commission approval will permit them to retain the impounded funds without the necessity for long drawn out and costly court proceedings.

Truly, the path of gas company management is not a rosy one, from this vantage point. It will be a job done well, indeed, to attain in 1952 a goal similar to the one it reached in 1951.

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### Northeastern Wins Connecticut Pipeline Suit

Constitutionality of a 1950 act of the General Assembly authorizing condemnation of land in Connecticut for natural gas pipeline rights-of-way was upheld by Superior Court Judge Abraham S. Bordon. It was the first such decision affecting property in Fairfield county. The decision granted Northeastern Gas Transmission Co. a right-of-way in Trumbull.

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- *Drilling and Completion

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- *Hi-Btu oil gas

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- Compressor stations
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- *Gas conditioning
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- Orifice meter measurement

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- *Methods of storing gas

**Gas Distribution**
- System design and operation
- *Pressure Regulation, Part 1
- *Pressure Regulation, Part 2
- *Metering

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*** Indicates chapters that have been printed since January 1, 1951; available without charge to new subscribers to American Gas Journal.**

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American Gas Fundamentals *is a comprehensive compilation of basic gas facts to guide any gas utility employee toward a broader understanding of the industry as a whole. It is written in layman's language so that the technical fundamentals of every subject treated may be digested and understood by the non-technical reader.*

*The series is designed to be removed from each current issue of* AMERICAN GAS JOURNAL *and filed in a ring binder where it may be accumulated into a text book of permanent usefulness. Material should be filed under the major subject head appearing in the upper right hand box at the head of each chapter.*

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CORPORATE STRUCTURE

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# *Corporate Organization of Gas Companies*

THIS CHAPTER deals briefly with some fundamental legal requirements of corporate organization, thereby intending to disclose the broad framework within which a working body must be created. The theoretical types of organization are discussed and some attention paid to the general principles which should govern any cooperative effort. Some of the factors which determine the form of business structure are examined. These generalities are illustrated by reference to a theoretical organization chart.

## *Legal Considerations*

Gas companies are formed under state corporation laws, and these laws vary from state to state. Generally, the board of directors elected by the stockholders is the managing or controlling body of the corporation and all powers are exercised or delegated by it. Hence the form of any corporate organization is ultimately determined by the board.

A corporation is generally required to have a president, vice president, a secretary and a treasurer, either by the statutory law or the charter or by-laws of the corporation. The by-laws may provide for other general officers such as chairman of the board, executive vice president, general manager, and others. The officers mentioned are generally elected by the board; other subordinate officers serve by appointment of the board.

The powers exercised by officers have usually been classified as (1) those inherent in the office; (2) those conferred on the particular officer by statute or the company's charter or by-laws or by action of the directors; (3) those implied from the express powers conferred on the officer; and (4) those which are apparent because the corporation permits the officer to exercise them without objection. The functions and duties of the various officers are usually defined by the by-laws or by action of the board; the officers in turn build a corps of agents and employees and define their functions and responsibilities. Consequently the actual working organization of any corporation is a highly individualized thing and even in the same industry its form may differ greatly from company to company.

## *Forms of Organization*

Business enterprises of any size require formal organization, a structure of authority and responsibility which will get the business done with the greatest wisdom and efficiency. There is a considerable volume of literature on the subject of corporate organization, and some of the distinctions made with respect to the various types are useful to have in mind in considering the subject as it relates to gas companies.

Most authorities mention three main types of organization: the "line", the "line-and-staff", and the "committee". It is perhaps only a theory that any corporate set-up exists purely as one or another of these types, and it is usual to find a combination of all three general ideas.

The "line" type of organization is the simplest. In it a direct line of authority runs from each superior to his subordinates and each subordinate is immediately answerable to only one superior. It assumes that each executive in his own department is fully informed and needs no special or technical advice or assistance other than that which he may get from his superiors or subordinates in the line. In this type of company few decisions would be reached by the process of conference or discussion and each executive would be an individual operator within his own sphere. Such organizations today are likely to be small ones built largely as a result of the efforts of a single individual who continues in command of the corporation.

The "line-and-staff" form combines with the idea of the direct line of authority and responsibility the further idea of staff assistance. This brings up the theoretical distinction between line work and staff work. There seems to be general agreement among the theorists that line work consists of deciding and executing, while staff work consists of informing and advising. The "line-and-staff" terminology is probably derived from military organization and the use of it in connection with business enterprises is in most cases misleading as to any strict division of these functions. However, it is true that staff assistance, usually of an expert or technical character, is often provided for executives. If this is done it is important to maintain a line of distinction so that such "staff" specialists do not intrude upon the "line" executives responsible for direction and control.

In the "committee" form of organization definite and permanent committees are set up to make decisions in various fields, i.e. design, sales, finance, etc. There are probably few examples of the pure committee form of organization. It is a cumbersome form, requiring much time for attendance at meetings, slowing up the process of decision, and weakening the individual sense of accountability for planning and execution. While few corporations are operated exclusively in this fashion, most corporations do present some examples of committee management. The board of directors itself, of course, is such a committee. And there are some functions which can best be performed by committees set up on a continuing basis. Such incidental use of committees is not what is meant by "committee organization".

### *Principles of Organization*

There are certain generally accepted principles which are applied in building or testing any working body. There is nothing esoteric about them and they could be stated by any intelligent person upon reflection. They cannot be applied arbitrarily as in a vacuum but will yield to particular circumstances and conditions. They have been stated in many ways and in many orders of importance, but the following will suggest the fundamental ideas.

Functions, responsibilities and authority should be clearly defined and understood. Without such definition the executive or supervisor will be constantly at a loss and will either not perform the duties which are his or will attempt to perform duties which belong to others, with resulting confusion. The definition of an office should be clear not only in the mind of the holder of the office; it must also be understood by his associates. It is a human failing to distend authority and contract responsibility. Any efficient organization must start with clear limitations of both.

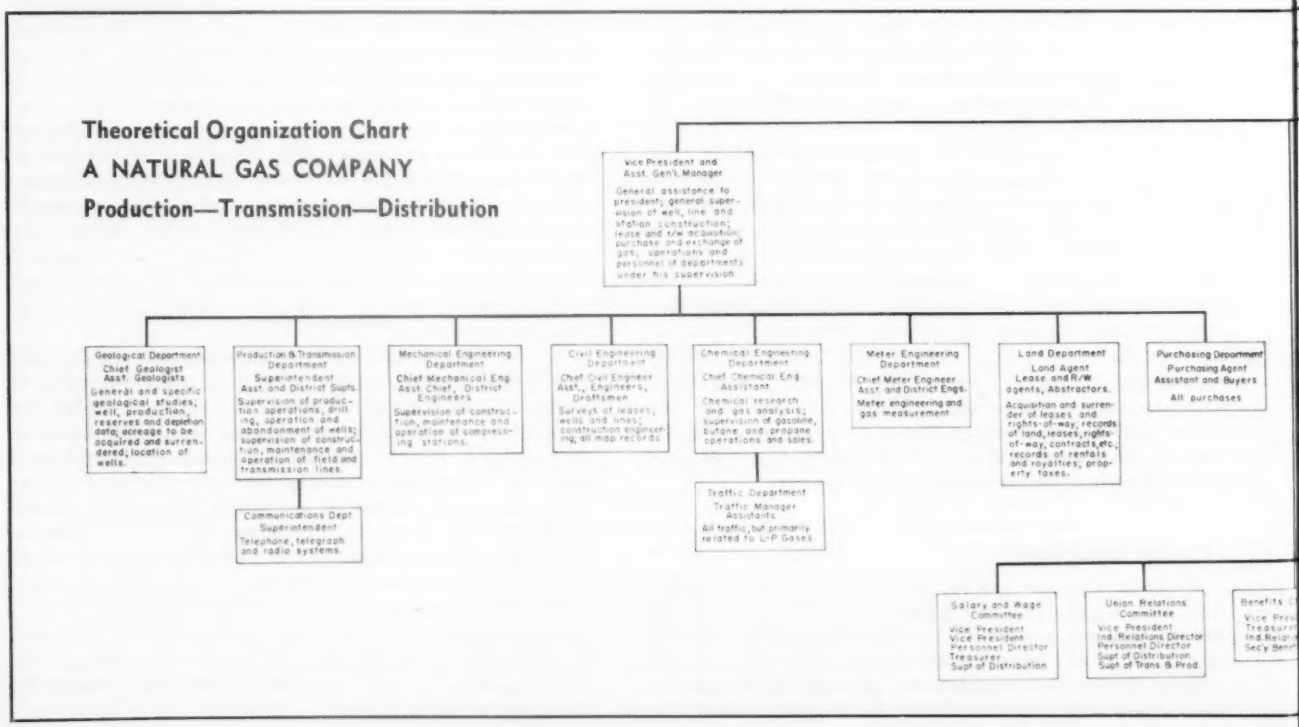
There must be a clear line of authority and responsibility. This means that each man in the establishment knows with certainty from whom he will receive direction and those for whose direction he is accountable. It is often true, however, that the duties of an office may be varied to such an extent that the person performing them will report to more than one supervisor; in such cases it is important that the division between the various functions and the two lines of responsibility shall be clearly recognized.

Authority must be commensurate with responsibility. It is idle to impose responsibility unless it is accompanied with the requisite authority to get the job done. This does not mean that an executive will have final authority in all matters coming under his supervision. Frequently matters within his general field will assume such magnitude or importance that he is duty bound to consult his superior. The line between the matters on which he may act on his own authority and those which he should refer to the superior should be drawn as carefully as possible but will always be affected by individual judgement.

The functions of any office should be logically related. If the size and type of the enterprise permit, it is ordinarily preferable that an executive have a single principle function, because this concentrates his thought and energy within a narrower field and produces better results. But if an executive must assume more than one principal function, the more closely the functions are related the more efficiently the work will be done. As an illustration it would seem strange for one executive in the gas industry to be charged with production and sales, while another is charged with transmission and advertising. A more logical grouping would be production and transmission under one man, sales and advertising under the other.

The number of subordinates to be supervised should be limited. This recognizes that the energy and capacity, as well as the time, of most men is limited and that efficiency is promoted if their duties do not cover too wide a field. Industrial enterprise presents every variation in this respect but authorities seem to agree that the number of subordinates to be directly supervised should not exceed four to seven.

There must be effective coordination outside the direct line of authority. It is impossible to separate the various activities of any modern business into water-tight compartments, and the effectiveness of an organization is directly affected by the extent of cooperation among supervisors on the same plane of authority. Effective coordination of this sort involves a knowledge by all supervisory personnel of the company structure and the manner in


Theoretical Organization Chart
A NATURAL GAS COMPANY
Production—Transmission—Distribution
Vice President and Asst. Gen'l. Manager
General assistance to president; general supervision of well, line and station construction; lease and r/w acquisition; purchase and exchange of gas; operations and personnel of departments under his supervision.
Geological Department
Chief Geologist
Asst. Geologists
General and specific geological studies, well production, reserves and depletion data; acreage to be acquired and surrendered; location of wells.
Production & Transmission Department
Superintendent
Asst. and District Supts.
Supervision of production operations, drilling, operation and abandonment of wells; supervision of construction, maintenance and operation of field and transmission lines.
Communications Dept.
Superintendent
Telephone, telegraph and radio systems.
Mechanical Engineering Department
Chief Mechanical Eng.
Asst. Chief, District Engineers
Supervision of construction, maintenance and operation of compressing stations.
Civil Engineering Department
Chief Civil Engineer
Asst., Engineers, Draftsmen
Surveys of leases, wells and lines; construction engineering; all map records
Chemical Engineering Department
Chief Chemical Eng.
Assistant
Chemical research and gas analysis; supervision of gasoline, butane and propane operations and sales.
Traffic Department
Traffic Manager
Assistants
All traffic, but primarily related to L-P Gases
Meter Engineering Department
Chief Meter Engineer
Asst. and District Engs.
Meter engineering and gas measurement
Land Department
Land Agent
Lease and R/W agents, Abstractors.
Acquisition and surrender of leases and rights-of-way; records of land, leases, rights-of-way, contracts, etc., records of rentals and royalties, property taxes.
Purchasing Department
Purchasing Agent
Assistant and Buyers
All purchases
Salary and Wage Committee
Vice President
Vice President
Personnel Director
Treasurer
Supt of Distribution
Union Relations Committee
Vice President
Ind. Relations Director
Personnel Director
Supt of Distribution
Supt of Trans. & Prod.

which their particular jobs impinge upon the jobs of others. This also involves adequate channels of communication between executives so that the points of contact between their functions, as they arise from day to day, will be readily recognized and the necessary cooperation yielded.

All of these principles involve no more than common sense and some appreciation of the fundamentals of good human relations.

### *Factors Determining Form of Organization*

No two corporations, even in the same business, will exhibit identical organization charts; and this is apt to be true even when they are under the same general ownership and control. Corporations engage in an infinite variety of business and the nature of the business is the first and most important factor determinative of the form of organization. The functions to be performed by a manufacturing enterprise, a service company and a merchandising business, to illustrate, are entirely dissimilar and therefore require dissimilar patterns of control and direction. The size of the business is also of paramount importance: the small business needs only a simple organization; an enterprise whose annual gross may exceed a billion dollars will call for an exceedingly complex one. The extent of the territory over which a business operates will also create special considerations.

The manner in which an organization has developed will always affect its present form. Corporations do not spring into existence fully grown; their present form is but one stage in a continuous process of evolution; and when procedures, functions and lines of authority are fully understood and accepted it will not always promote greater efficiency to redraw them according to strict logic or pure theory.

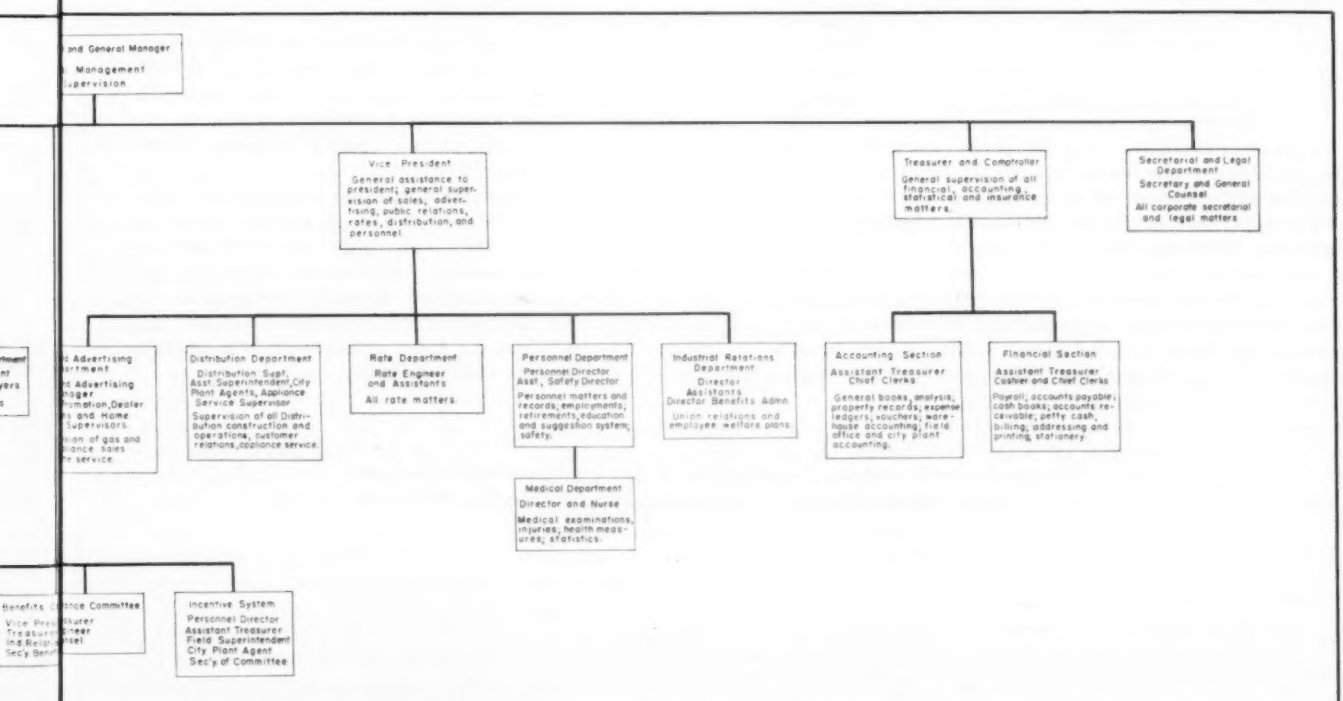
Another factor affecting the form of organization is the human one. No two executives or supervisors are gifted with the same abilities and capacities and, particularly in the upper brackets of direction, it would be unwise to squander obvious talents in order to achieve complete logic in the grouping of functions. Or, differently stated, logic may relate to individual capacities rather than to the activities of the business. One executive may have imagination, another daring, another meticulous regard for detail, another the ability to get things done, another a superior talent at getting along with people. Such characteristics do not appear on any organization chart but they are important determinatives of the form of organization.

Some regard may also be paid to a fair division of work among executives. After various functions are assigned in consonance with the exigencies of the business and the capacities of individuals, there may be other and less important supervisory duties which will be placed in one person or another depending largely on the volume of work which has already been assigned to him.

Thus few organization charts will appear to be ideally perfect to anyone not familiar with the specific company.

### *Gas Company Organization*

A gas company may engage in three principal functions: production of natural or manufactured gas, transmission and distribution. Some companies engage in only one of these, others in two, and others in all three. For purposes of illustration a theoretical organization chart for a natural gas company engaged in all three functions is presented. For a manufactured gas company the production functions would be different and the transmission function would probably be more limited. The company illustrated is assumed to be an operating company which performs all necessary functions for itself. In actual practice some com-


Vice President
General assistance to president; general supervision of sales, advertising, public relations, rates, distribution, and personnel.
Treasurer and Comptroller
General supervision of all financial, accounting, statistical and insurance matters.
Secretarial and Legal Department
Secretary and General Counsel
All corporate secretarial and legal matters
Distribution Department
Distribution Supt.
Asst. Superintendent, City Plant Agents, Appliance Service Supervisor
Supervision of all distribution construction and operations, customer relations, appliance service.
Rate Department
Rate Engineer and Assistants
All rate matters.
Personnel Department
Personnel Director
Asst., Safety Director
Personnel matters and records; employments; retirements, education and suggestion system; safety.
Industrial Relations Department
Director
Assistants
Director Benefits Admn.
Union relations and employee welfare plans.
Accounting Section
Assistant Treasurer
Chief Clerks
General books, analysis, property records; expense ledgers, vouchers; warehouse accounting; field office and city plant accounting.
Financial Section
Assistant Treasurer
Cashier and Chief Clerks
Payroll; accounts payable; cash books; accounts receivable; petty cash; billing; addressing and printing, stationery.
Medical Department
Director and Nurse
Medical examinations, injuries; health measures; statistics.
Incentive System
Personnel Director
Assistant Treasurer
Field Superintendent
City Plant Agent
Sec'y of Committee

panies rely for engineering, construction, rate, personnel and other services on a service company formed by the holding company or on an affiliated company.

The chief executive officer is shown to be the president and general manager. However, the chief executive may be the chairman of the board or simply the chief executive officer. The division of duties between such officers, where they are present in the same corporation, is determined by the by-laws or informal understanding and is peculiar to the individual company. A general manager has been said to be the person "who really has the most general control over the affairs of a corporation . . . and may be considered the principal officer",—so where the offices of president and general manager are vested in different individuals, the division of functions is again a matter of special definition. Which officer is the principal one probably depends upon which is primarily responsible to the board of directors. Subject always to the board, such an officer runs the corporation, determines its policies, forms its organization, and is accountable for its results.

On the illustrative chart only four persons are shown as reporting directly to the president. This does not mean that the president has no contact with anyone else in the organization. He undoubtedly will have contacts with subordinates of all four of these officers; but such contacts will be limited ordinarily to the so-called "staff" services. In such contacts care should be taken not to bypass the executive in charge in a way that will impair his sense of responsibility for his job or tend to weaken his authority. But though an officer may secure information, research, analysis or just plain pencil work without necessarily going through the line of management directly under him, he should not handle so-called "line" duties in this fashion. In the direct transmission of orders and the execution of the primary functions of various personnel, immediate subordinates should never be by-passed or ignored. To do so is to destroy the organization.

By reference to the chart, it will be noted that one vice president supervises eight departments and the other vice president only five. However, the eight departments are all closely related in their functions, all of them being of an engineering or operating character. The chart can indicate only in the broadest way the work areas of the various departments but the reader can readily fill in details from his own experience or by deduction.

The other vice president has a smaller number of departments under his control. His supervisory area is that of distribution, sales, rates, advertising and public relations, all related functions, and in addition the various responsibilities relating to personnel. The division of duties between the two vice presidents seems to represent a logical grouping of functions. There must be real cooperation between the two officers but the points at which their activities must be synchronized continuously are reduced to a minimum. It will be apparent that one vice president is apt to be an engineer by training and the other a person who has specialized in sales and its related fields.

The fiscal and accounting duties are shown to be combined in one officer who is both treasurer and comptroller. These functions are often separated into two offices but it is beyond the scope of this chapter to inquire into the arguments pro and con on that subject. Under the treasurer and comptroller there is a rough division into fiscal duties, which are handled by one assistant, and accounting duties, which are handled by the other.

In this theoretical example the corporation secretary is also chief counsel and his department handles not only the formalities of corporate behavior but also the legal work of the corporation. In a company with a large body of stockholders, the secretarial office would undoubtedly be separate from the legal department; sometimes it is combined with the treasurer's office. The size and character of the legal department will depend on what work is done in the department and what is done by outside counsel. The burden of observing all the administrative niceties required of public utility corporations will add up to a considerable volume of legal work which can be done better in the corporation's own office; court trials particularly in negligence cases are apt to be handled by outside counsel.

The various department heads, of whom fifteen are shown, represent the second level of cooperation and coordination. No department can operate independently, and not only between the heads of the departments but also between the subordinates in each there must be an effective and smooth meshing of activity. The provinces of the various departments are indicated on the chart and are in large measure self-explanatory.

It will be noted that a number of committees are shown as operating directly under the president. This is because these committees include executive employees who report to the president. All but one of these committees have to do with personnel matters. Personnel policies cannot be established nor can personnel problems be solved in the abstract; and every executive is directly interested in the employees under his supervision.

In conclusion it might be noted that organizational rules and principles and routines are necessary, in about the same way that it is helpful for a column of soldiers to march in step—not so much because it looks better but because there is less chance of stepping on the other fellow's heels. But the clearest organization chart will not produce a good working team unless there is a genuine spirit of cooperation and good will.

This chapter on Corporate Organization of Gas Companies was prepared by Edward M. Borger, President, The Peoples Natural Gas Co., Pittsburgh.

# Texas Illinois Line Adds 374-Million To Chicago-Area Gas Supply

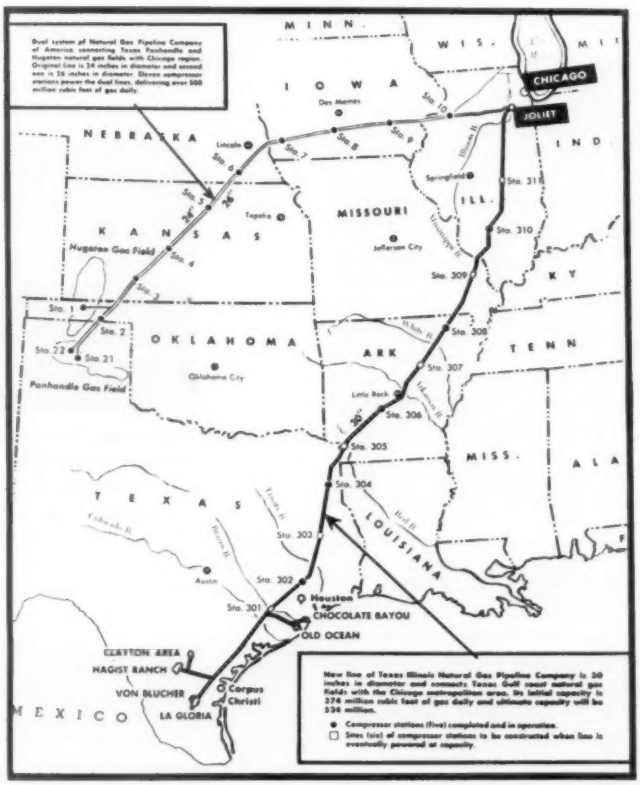
## Underground Storage in Salt Dome to Handle Winter Peaks

FIFTEEN months after groundbreaking, the 1,417-mile Texas Illinois natural gas pipeline was placed in service December 5 with an initial daily delivery rate of 374-million cubic feet to a market area with a total population of 6,500,000. The 30-inch line, currently operating with a total of 50,000 compressor horsepower, is designed for a top operating pressure of 858 psi and a maximum daily capacity of 524-million cubic feet.

Six big Gulf coast gas fields will supply the new Texas Illinois Natural Gas Pipeline, which terminates at Joliet, Illinois, together with the dual lines of Natural Gas Pipeline Company of America, an affiliated company. Coupled directly to the operating plans for the three pipelines, the management is developing an underground gas storage area near Joliet that is expected to alleviate the so-called gas shortages during the periods of heavy consumer-demand.

Most of the new pipeline's output augments the dual lines of Natural Gas Pipeline Company of America serving eighteen utility company customers, in Indiana, Illinois, Wisconsin, Iowa, Kansas and Nebraska. Now, a few additional utility companies in downstate Illinois are served directly from the Texas Illinois line.

ROUTE OF THE NEW TEXAS ILLINOIS NATURAL GAS PIPELINE




### 4 utilities get 80% of gas

Four major Chicago metropolitan area utility companies receive approximately 80 per cent of the new pipeline's output: Peoples Gas, which serves the city of Chicago; Public Service Company of Northern Illinois; Northern Indiana Public Service Company, and North Shore Gas Company.

The new pipeline has a static gas storage capacity of approximately 31,046,400 cubic feet.

From Joliet, Texas Illinois is extended to Volo, Illinois, by a 20-inch line for gas deliveries to the north of Chicago.

### Mississippi crossing made safe

Built at a stated cost of $135-millions, more than 500,000 tons of steel were used in new line. The 30-inch pipe has an 11/32-inch wall thickness, except for the underwater crossings where as heavy as one-inch wall is used under the Mississippi River. The line crosses 456 rivers and streams of all sizes.

Most spectacular of all the river crossings was the Mississippi, where flood waters delayed construction for several weeks this summer. A 3,000-foot channel for three 20-inch diameter transmission lines, with one-inch walls, connects Missouri and Illinois.

Beneath the crossing, the Mississippi's bed is buttressed and made stable by an outcropping limestone ridge which cuts diagonally across the river. This natural dam will minimize the danger of stream bed movement damaging the lines during flood periods.

The Joliet ceremonies attending the usual "valve-turning and flare lighting" included addresses by public officials and appropriate public statements by James F. Oates, Jr., Texas Illinois chairman; and Joseph J. Hedrick, president.

### Builders, engineers praised

Mr. Hedrick praised the work of the builders and the Texas Illinois engineering staff that designed the pipeline and directed its construction. Construction was performed by three major pipeline builders: Midwestern Constructors, Inc., Tulsa; H. C. Price Co., Bartlesville, Okla., and Bechtel Corp., San Francisco Hydrocarbon Construction Co., Houston, built the five compressor stations.

Texas Illinois Natural Gas Pipeline Company is a Chicago firm, which together with Natural Gas Pipeline Company of America and Natural Gas Stor-

age Company of Illinois, is affiliated with The Peoples Gas Light and Coke Company. Peoples Gas owns 67 per cent of the outstanding shares of common stock of Texas Illinois and all the outstanding common of Natural Gas Pipeline.

Officers of the pipeline companies are Joseph J. Hedrick, President and general manager; Mark V. Burlingame, vice president in charge of operations; J. G. Dickinson, vice president in charge of production; George P. Garver, vice president, secretary, and treasurer, and Clayton E. Holmes, vice president in charge of sales. James F. Oates, Jr., chairman of Peoples Gas, is also chairman of the boards of directors of the two pipeline companies.

### 20 years of pipeline experience

Twenty years ago, Natural Gas Pipeline Company of America placed in service the first long distance high pressure natural gas line to supply the Chicago area. A pioneering project in the field of high pressure transmission of natural gas, it was the first major pipeline of high tensile strength, 24 inches in diameter, extending from the Texas Panhandle field and later the Hugoton field. In January, 1949, a parallel line 26 inches in diameter was completed by Natural Gas Pipeline. The two lines have a combined daily transmission capacity of 510-million cubic feet.

Combined daily capacity of the three pipelines is in excess of 880-million cubic feet.

### Among largest integrated systems

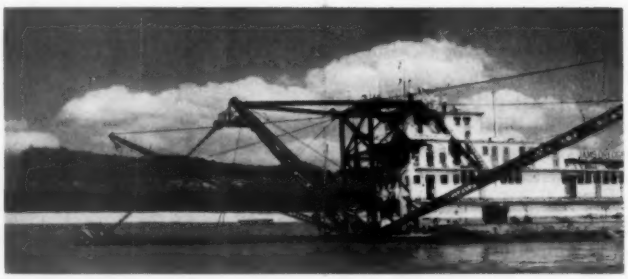
The Peoples Gas Light and Coke Company has been the principal company in one of the largest fully-integrated natural gas systems. The companies which comprise the integrated system are The Peoples Gas Light and Coke Company, Natural Gas Pipeline Company of America, Texas Illinois Natural Gas Pipeline Company, Natural Gas Storage Company of Illinois, Chicago District Pipeline Company.

The new Texas Illinois pipeline greatly increases the resources of the integrated system, which produces a large part of its own gas supply, transmits it through its own long distance lines and finally processes, distributes and sells the gas to the consuming public.

In Chicago, Peoples Gas distributes a mixed gas, 80 per cent natural and 20 per cent manufactured, to its nearly-one million general customers.

Last summer, Peoples Gas applied to the Illinois Commerce Commission for authority under the present space heat limitation order to offer gas heat at once to the first 10,000 Chicago families on the waiting list and to 20,000 other families early in 1952. Authority for these additions was promptly given. The Chicago waiting list has approximately 115,000 applicants.

**Valve installations set inland from the east bank of Mississippi River at the point where three heavy-walled pipes cross and merge with the main 30-inch Texas Illinois transmission line.**



**Operating day and night as result of high-water delays, this 840-ton hydraulic dredge finished the 300-foot-wide Cross-river channel in the Mississippi River bed for three heavy-walled lines that were placed in service on schedule.**

Further steps toward the elimination of the gas-service waiting list, Mr. Oates, chairman of Peoples Gas, explained, "must await the successful development of seasonal gas storage facilities by utilizing a dome-shaped stratum . . . in Kankakee county, Illinois."

Development work at the proposed storage site, Mr. Oates explained, is encouraging and indicates that more than 90 billion cubic feet of gas from the pipelines can be stored in summer months and held for use in winter-time to meet house heating demand.

### Unique underground storage project

Underground storage of natural gas, in the plans of Natural Gas Storage Company of Illinois, an affiliate of both Texas Illinois Natural Gas Pipeline and Natural Gas Pipeline, is unique in that it is developing a salt water dome in the "Herscher Anticline", located about forty miles south of Joliet, Illinois, and fifteen miles east of the new Texas Illinois pipeline.

This storage formation, newly explored, is distinct from the depleted oil and gas formations often used for gas storage purposes if they are located within economic distances of major gas-consuming areas.

### 800,000 more househeaters

"If the storage field materializes as it now promises to do, it appears that we will have storage enough to serve at least an additional 800,000 househeating customers on a peak day," commented Mr. J. J. Hedrick, president of Natural Gas Storage and of both Texas Illinois Pipeline and Natural Gas Pipeline.

The economics of gas storage dominated considerations of possible sites. the nearest depleted production formations are 200 miles south of the pipelines' markets; the Herscher area is fifteen miles from the transmission line and is well-within the economic limits of peak-period transporation to the distribution systems.

The Herscher Anticline was first noted in a bulletin of the Illinois Geolog-

*(Continued on page 43)*

# UTILITY STOCKS GO INTO 1952 MAINTAINING HIGH LEVEL

## 1951 Earnings Better than Other Industrials

by John F. Falvey

John F. Falvey

THE yields obtainable on the stocks comprising the AMERICAN GAS JOURNAL index remained practically unchanged during the past month; average prices for public utility stocks as a group leveled off at about the highest point reached during the past twenty years.

The reason for their satisfactory market performance is not hard to find. Earnings coverage for dividends is good; greater institutional buying of common stocks is being reflected in increasing emphasis on so-called "defensive" stocks, in which category utility stocks for some unknown reason are placed by market observers; and—last but not least—utility industry earnings currently are making better reading than those for other industrial companies. This trend is expected to continue for some little time.

Earnings gains already are in evidence for an increasing number of electric and combination electric and gas companies as retroactive tax accruals have caught up with higher Federal income taxes. The elimination, November 1, of the 3 1/3 per cent excise tax on industrial and large commercial electric revenues is offsetting at least 75 per cent of the increase in Federal normal income—and surtaxes. In a number of instances the saving in excise taxes actually exceeds the increase in Federal income taxes.

### Rate Increases, Gas-Earnings Hope

The gas companies have no such offset but, in keeping with the electric and combination companies, they too will benefit from granting of an increasing number of rate increases now being sought as a means of countering sharply rising taxes and operating costs.

Electricity and gas rate increases are lagging far behind the increases in every other element of the cost-of-living. The utility companies have about reached the bottom of the barrel in their search for more and more economies through which to absorb, in some measure, the sharp and constant rise in such 'uncontrollable' expenses as taxes.

These rate increases are far overdue, by whatever yardstick measured; and the only strange feature, to this writer's way of thinking, is that a greater number of utility managements have not sought emergency rate relief as they have had to fall back on the fat accumulated during good years while waiting patiently for regulatory commissions to

## Index of Yields : Selected Utilities Stocks

| | Dec. 1951 | Nov. 1951 | Oct. 1951 | Sept. 1951 | Aug. 1951 | July 1951 | June 1951 | May 1951 | Apr. 1951 | Mar. 1951 | Feb. 1951 | Jan. 1951 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natural Gas Transmission Companies | 4.50% | 4.51% | 4.67% | 4.67% | 4.65% | 5.07% | 5.26% | 5.35% | 5.22% | 5.38% | 5.31% | 5.36% |
| Natural Gas Transmission & Distribution Companies | 5.33 | 5.30 | 5.36 | 5.09 | 5.11 | 5.24 | 5.30 | 5.45 | 5.43 | 5.35 | 5.31 | 5.47 |
| Manufactured & Mixed Gas Companies | 5.25 | 5.36 | 5.32 | 5.43 | 5.46 | 5.52 | 5.22 | 5.35 | 5.23 | 5.22 | 5.21 | 5.22 |
| Class "A" Electric Companies | 5.80 | 5.78 | 5.83 | 5.74 | 5.69 | 5.97 | 5.95 | 5.88 | 5.52 | 5.49 | 5.65 | 5.62 |
| Class "B" Electric Companies | 5.76 | 5.82 | 5.78 | 5.74 | 5.78 | 5.86 | 5.88 | 5.94 | 5.72 | 5.66 | 5.78 | 5.80 |

**Method of Compiling Index of Yields**

This is a straight arithmetical index of comparative yields obtainable on a selected group of gas and electric utility industry common stocks.

The companies comprising this index have been selected by the AMERICAN GAS JOURNAL as providing a representative cross-section of each industry, from the standpoint of geographical diversification and of the relative importance of the individual companies in their areas.

No effort has been made to weight the average to give effect to changes in capitalization or in dividend rates because the yields afforded on the issues reflect such changes. The index is designed to show the rate of return and not necessarily market movements on the stocks comprising it.

The companies used in compiling this index are:

Natural Gas Transmission Companies: El Paso Natural Gas Co.; Northern Natural Gas Co.; Panhandle Eastern Pipe Line Co.; Southern Natural Gas Co.; Tennessee Gas Transmission Co.

Natural Gas Transmission and Distribution Companies: Columbia Gas System, Inc.; Consolidated Natural Gas Co.; Lone Star Gas Co.; Oklahoma Natural Gas Co.; Pacific Lighting Corp.

Manufactured and Mixed Gas Companies: Bridgeport Gas Light Co.; Brooklyn Union Gas Co.; United Gas Improvement Co.; Peoples Gas Light & Coke Co.

Class "A" Electric Companies: Boston Edison Co.; Commonwealth Edison Co.; Houston Lighting & Power Co.; Southern California Edison Co., Ltd.

Class "B" Electric Companies: Dayton Power & Light Co.; Hartford Electric Light Co.; Pennsylvania Power & Light Co.; Public Service Co. of Colorado; San Diego Gas & Electric Co.

come along with 'too little and too late', in the form of rate increases.

### Good Outlook for Utilities Dividends

The outlook for maintenance of at least the current dividend rate is better for the utilities, chiefly the electric and combination companies, than it is for other industrial enterprises. Dividend payments by the latter now are running behind the 1950 level, after having been well ahead of 1950 in earlier months of 1951. While the total for 1951 is expected to be slightly in excess of 1950, an increasing number of stock market observers are wondering just how safe industrial dividend payments are in the face of declining corporate profits.

Latest reports of the Department of Commerce show corporate profits running at an annual rate of a little more than $17 billion, compared with the record high figure of $22.8 billion set in 1950. Dividends of $9.2 billion paid out last year represented 40 per cent of the year's earnings, and a payout rate of 55 per cent would be necessary if earnings and dividends were to continue at their present level during 1952.

This is too much to hope for. Some paring of dividend payments by industrial companies may be anticipated due to a combination of falling earnings, dwindling corporate cash resources and the continuing need for corporations to finance heavy additions to plant and equipment.

### Seasoned Income Stocks Preferred

The factors combine to spell one of the reasons for the recent increasing preference for seasoned stocks for income, rather than for speculative issues with capital appreciation possibilities which previously had been stressed.

This is being reflected in the increasingly large purchases of common stocks being made by trustees under the Prudent Man Law which permits trustees to invest a maximum of 35 per cent of available funds in securities not qualifying as legal investments, meaning equities. No less than twenty states have enacted legislation along this line.

Under the new latitude afforded them, trustees have gone almost 'whole hog' for common stocks in their search for higher income return on their investment funds. In so doing they have almost completely ignored preferred stocks. In a recent survey conducted by the Trust Division of the New York State Bankers Association, only one of the sixteen banking institutions queried on their investment procedures, under the Prudent Man Law, admitted buying preferred stock and in this instance the amount was a mere ten per cent of the total.

In contrast, the trustees reported average common stock investments of 22.2 per cent, or about three-fifths of the maximum permitted them under law.

This latest move by trustees is one of the principal factors behind the narrowing of the 'spread' between the income return afforded on corporate bonds and stocks. The yield on 200 representative common stocks averaged 5.78 per cent in November 1951, and the average corporate bond yield for the month was 3.20 per cent. This compared with yields of 6.80 per cent and 2.88 per cent, respectively, shown on common stocks and bonds in the corresponding 1950 month. As a result, the stock yield in November 1951 was only 180 per cent of the return afforded on corporate bonds, against 247 per cent in November 1950.

The differential now is smaller than at any time during the past several years, and the shrinkage is traceable to rising quotations for common stocks while bond quotations have slumped.

The spread is expected to narrow further in the event declining corporate profits necessitate reducing dividends from their present level.

### Heavy Bond Financing

As indicated in last month's AMERICAN GAS JOURNAL, the utility companies by and large made a commendable record in 1951 despite the worsening bond and preferred market conditions under which they had to do the bulk of their financing. Bond sales accounted for 64 per cent of all public financing for the electric and combination companies, or about ten per cent more than in 1950; preferred stocks, at twelve per cent, were only little more than half the 1950 total and common stock was up slightly at 24 per cent.

Preliminary indications are that the electric and combination companies brought down to surplus in 1951 about $140 million after all charges and dividends, compared with $205 million in 1950. The picture is better than it seems, however, since depreciation accruals increased to $480 million, from $438 million, under the stimulus of expanding plant. As a result, the entire industry last year had internal funds available for financing of new plants that were only $23 million less than a year earlier.

Comparable data on the gas industry for 1951 is not available at the time of this writing, but common stock sales of these companies are believed to have closely approximated the nearly fifteen per cent level of a year earlier.

In their search for new bond money with which to finance their continuing high level of property additions and improvements, the utility companies now are forced to compete with other industrial enterprises in ever-increasing degree.

All industry has been falling back more heavily on bonds for expansion. Industrial companies in the first nine months of 1951, for instance, raised $1,500 million through sale of bonds, or approximately double the $735 million raised through the same route in the similar 1950 period. One electrical equipment manufacturer and two chemical companies alone accounted for $800 million of bond financing.

### Expect 1952 Bond Financing to Rise

Estimates of corporate bond financing in 1952 are constantly being revised upward. Several reasons may be cited for the trend: rising short term interest rates; growing unwillingnes of banks to expand their commercial lending; and decline in corporate profits, which is curtailing working capital funds and causing management to place greater dependence on debt financing.

Despite loginess of the market for new corporate bond issues which were brought out during recent weeks, investment underwriting firms now have an inventory of only about $50 million of unsold issues.

Syndicate managers calmly view the prospects for disposing of these bonds. No important new issues are scheduled to come to market until late this month. Thus, the pressure normally attending marketing of new issues will not be present during this period of digestion, and the underwriters further express the belief that recent renewed weakness in the market for Government bonds will not communicate itself to the market for corporate obligations.

Close observers of the bond market characterize this view as merely wishful thinking. Corporate bond prices already have begun to reflect the weakness in Government bonds. The expected year-end demand for bonds has not been forthcoming and cutting of prices of somewhere between five and ten basis points will be necessary, they maintain, to move these unsold bonds off dealers' shelves.

A reduction of five to ten basis points should suffice for the purpose, however, they admit as they express the belief that the market for corporate obligations should stabilize slightly below present price levels.

While increasing corporate management-dependence on bonds as a financing medium normally would be viewed askance, there are several mitigating factors in the situation. Common stockholders are better protected against dilution than if more and more common shares were to be sold; dividends are safeguarded against declining earnings as the cost of capital is lowered.

# Review of Outstanding 1951 Higher Court Gas Law Suits

by Leo T. Parker
Attorney at Law, Cincinnati

DURING the year 1951 the higher courts rendered many outstanding decisions involving both municipalities and gas corporations. We shall briefly review some of these, and readers who desire details of any specific law suit may refer to the citation and obtain and read the complete decision in any good library.

## Gas Supply Cut Off

Considerable discussion has arisen from time to time over the legal question: "Under what circumstances is a gas company liable in damages for cutting off a gas supply to a private residence?"

According to a late higher court decision the answer is: The gas company is liable if the evidence shows that the gas supply was cut off through negligence of the gas company's employes, and the occupant in the dwelling suffered financial loss or physical injury.

For example, in Oklahoma Natural Gas Company v. Gray, 230 Pac. (2d) 256, the testimony showed facts as follows: Through negligence, error and inadvertence gas was cut off from a residence occupied by a woman named Gray on a very cold day.

Gray sued the gas company for heavy damages for physical suffering, loss of income and exemplary damages sustained by reason of the Oklahoma Natural Gas Company's wrongful, willful and negligent conduct in shutting off the gas service in her home for several hours during a period of extremely cold weather, although her account had been paid. She alleged that because of such wrongful conduct she was exposed to the cold for several hours, and eventually was forced to go out into a blizzard in attempting to have gas service restored, and as a result contracted influenza and pneumonia.

The jury rendered a judgment in favor of Gray, and said:

"In the present case the defendant's (Oklahoma Natural Gas Company) negligence is admitted. There was positive medical testimony that, immediately following her exposure, plaintiff (Gray) developed pneumonia, and that such illness resulted from the exposure to which she had been subjected by reason of the gas service being shut off during a period of extreme cold weather."

For comparison see Arkansas-Louisiana Gas Company v. Phillips, 196 Ark. 278. In this case a gas company wrongfully shut off the gas supply, thus depriving the consumer of hot water at a time when it was necessary for treatment of an injury. That decision explicitly pointed out the medical testimony established that for proper treatment of the consumer an adequate supply of hot water was needed and it would have minimized the pain, and allowed an opportunity for recovery from the injury. Hence the gas company was held liable in damages to the consumer since the testimony showed that the consumer's gas supply had been negligently cut off.

Failure of the consumer to prove that the act of the company's employes in cutting off the gas caused his injury or sickness always results in a favorable verdict for the gas company. This is so although the gas was cut off through error or negligence.

See the cases in which gas companies were held *not* liable for cutting off a gas supply, as follows: Fort Smith Gas Company v. Cloud, 97 A.L.R. 833, and Fort Gas Company v. Blankenship, 102 S. W. (2d) 75. In the Cloud case the evidence showed the consumer voluntarily had exposed himself, thereafter continued in his regular work, and did not seek medical attention for several days thereafter. The court pointed out that the proximate cause of his illness was his own voluntary and unnecessary act in so exposing himself, rather than the gas company's delay in furnishing fuel.

In the Blankenship case, the gas company was sued for damages for illness suffered by a small child, allegedly as a result of the company's discontinuance of service after refusal to pay the bill. The court pointed out that there was no medical testimony that the illness was induced by, or resulted from, the act of the company in cutting off the gas. Hence, the gas company was held not liable.

## Liable for Slander

Modern higher courts consistently hold that slander is "the speaking of base and defamatory words which tend to the prejudice of the reputation, office, trade, business, or means of getting a living of another."

According to a late higher court decision, a gas corporation is liable for slander only when the testimony shows that the slander effected damage or mental anguish.

In Rauch v. Gas Service Company, 235 S. W. (2d) 420, the testimony showed facts as follows: One Rauch, a salesman, had sold gas appliances for several years and had been employed by the Gas Service Company. It was a part of his duty to create good will for the Gas Service Company, to promote the sale of gas-fired appliances and eliminate use of competitive fuels. One Jenkins was District Manager of the Gas Service Company. It was his duty to supervise the employes in the district.

The evidence showed that one Edwards was constructing a new home. Jenkins sent Rauch to see him about a sale of a gas-fired furnace. Rauch, together with the foreman of the gas company's service department, checked a map to determine whether or not gas mains extended to the location of the Edwards home and came to the conclusion that the main was just across the street from the home. They so advised Edwards and sold and installed a gas furnace in the home. It was later discovered that the gas main was a block away from the Edwards home and, in order to connect the furnace installed with the gas line it was necessary to extend the line. Jenkins told Rauch that he had made a mistake in reading the city map, which was inexcusable. During the ensuing argument over this and other disagreements Jenkins said: "You (meaning Rauch) are a liar and a cheater, and you (meaning Rauch) have never done your job and you will have to eat a lot of crow up and down Broadway from now on."

Rauch sued the Gas Service Company

*(Continued on page 36)*

# IS 100% NATURAL GAS THE ANSWER?

by E. G. Boyer

Philadelphia Electric Company

## Part 3

### Program for Conversion of Customers' Appliances

1. SECTIONALIZING METHOD

The Philadelphia Electric Company serves the area adjacent to the City of Philadelphia, Pa. It covers some 1140 square miles, with a population of more than 740,000 living in 88 first and second class townships, 71 boroughs, and two small cities. The gas to serve these customers is supplied through more than 2100 miles of transmission and distribution mains. The more than 170,000 customers on our mains average only about 146 per square mile, and about 80 per mile of main.

This spread-out system was studied carefully for the possibility of using the sectionalizing method for a one-step conversion, but to sectionalize would have required an exorbitant expenditure for valves, cut-offs, interconnections, and so on. Therefore, it was decided that although the sectionalizing method would have been possible, it was economically impractical.

2. PRESSURE METHOD

The second method considered for completing the conversion in one step was the "pressure increase" method. It was thought that (a) the pressure could be raised by some predetermined amount on the customers' appliances; then (b) the appliance would be adjusted for the 800 Btu, 0.58 specific gravity gas; then (c) the pressure would be lowered to normal; then (d) the final gas would be made and distributed.

The first complication which presented itself was: How were all the some 50,000 house regulators to have their pressures increased on the day, or the several days in which the conversion would have to take place? And then, after the adjustment of the appliances, the homes would have to be revisited once again to lower the pressure on these house regulators. These two visits to the customers' homes for pressure changes, plus the visit for the adjustment of the appliances, were considered to be too many and it would have to be done in too short a time for a satisfactory and economical job.

Parts 1 and 2 of this AGA convention paper appeared in the November and December issues

However, the method was tested at the plant on some critical appliances. They were adjusted for regular distribution pressure after which the pressure was increased 50 per cent and the gases, both old and new, were put in under the higher pressure. It was found that on the new gas with its high percentage of slow burning natural gas and inerts, the tendency was for it to blow off of the ports. Furthermore, it was found under the increased pressure that there was an exorbitant amount of carbon-monoxide generated which was deemed to be unsafe.

For these reasons the pressure increase method was discarded.

3. INTERMEDIATE GAS-AND-ADJUSTMENT METHOD

#### a. General

The third method considered for the change-over of the system to the new standard gas was the "intermediate gas-and-adjustment" method. By this method there would be as many changes as necessary made in the Btu content and specific gravity of the gas, with appliance adjustments after each change, to raise the gas from 520 Btu and its specific gravity to the new standard of 800 Btu and 0.58 specific gravity. The changed characteristics of the gas were to be such as to give not more than a 10 per cent increase in the heat input to the burners. It was desired that the intermediate appliance adjustments should be not over two in number, at the same time providing the minimum percentage of under gassing.

The problem, then, boiled down to making a number of calculations to determine a satisfactory balance between over gassing and under gassing, with each step being as small as possible, and requiring not more than two visits to the customers' premises for appliance adjustments.

Before the changeover, the Philadelphia Electric Company territory was divided into two areas. One was called the "high specific gravity area" in which the base gas had a specific gravity range of about 0.66 to 0.70. The other was called the "low specific gravity area" with a gravity range of about 0.45 to 0.50. In deciding upon the intermediate steps therefor, two different sets of steps had to be determined.

#### b. High specific gravity area

Calculations showed that the high specific gravity area could be changed over with two appliance adjustments. Table 13 gives the full data which were carefully checked experimentally on the appliances in the laboratory.

By reference to this table it is seen that the base gas at the start was 520 Btu, and the specific gravity was 0.67. The first step was a *production change* requiring the raising of the Btu of the gas to 565 and the lowering of the specific gravity to 0.66. As shown on the bottom line of the table this was the equivalent of a heat input *increase* of 9½ per cent. With this gas in the mains, the appliances were adjusted for a gas of 650 Btu and 0.63 specific gravity. Again referring to the bottom line of the table, it is seen that with the 565 Btu gas on the appliances adjusted for 650 Btu and 0.63 specific gravity, the heat input change was equivalent to a *decrease* of 15.1 per cent. When all the appliances had been adjusted for 650 Btu, the gas of 703 Btu and 0.61 specific gravity was produced at the plant and sent out. When this reached the appliances, it

gave an *increase* in heat input of 9.9 per cent over the heat input that would have been experienced with 650 Btu, 0.63 specific gravity gas. With the 703 Btu, 0.61 specific gravity gas in the system, the appliances were adjusted for 800 Btu and 0.58 specific gravity, which produced a heat input *decrease* of 15.7 per cent. After all the appliances were adjusted for this gas, the gas itself was produced and sent out, and the heat input became that for which the appliance had been adjusted.

Figure 9 shows these steps plotted on the gas mixture chart by the dashed line with the circled points.

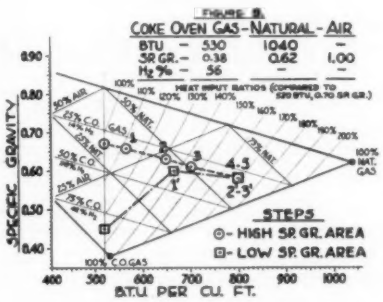


FIGURE 9.
COKE OVEN GAS-NATURAL-AIR
BTU – 530 1040 –
SP GR.– 0.38 0.62 1.00
H2 % – 56 – –
HEAT INPUT RATIOS (COMPARED TO 520 BTU, 0.70 SP GR.)
SPECIFIC GRAVITY
BTU PER CU. FT.
STEPS
⊙- HIGH SP GR AREA
⊡- LOW SP GR AREA
100% CO GAS
100% NAT. GAS

## c. Low specific gravity area

For the conversion of the "low specific gravity area," calculations showed that one intermediate gas would suffice. Table 14 shows these data, which were carefully checked on the appliances in the laboratory.

It will be seen that the first step was a production change to a gas of 665 Btu and 0.60 specific gravity. This change is equivalent to a heat input *increase* of 10.7 per cent. After this gas was in the mains the appliances were adjusted for the final gas of 800 Btu and 0.58 specific gravity. This, with the 665 Btu, 0.60 specific gravity gas in the mains was equivalent to a heat input *decrease* of 18.4 per cent. After all the appliances had been adjusted for this new gas, the gas itself was produced at the plant and sent out. When this reached the customers' appliances the heat input rose to normal and was exactly that for which the appliances had been adjusted.

Figure 9 shows these steps plotted on the gas mixture chart by the dash-dot line with the squares around the points.

## d. Appliance adjustments

The appliance adjustments referred to included a change of the orifice to one for the gas specified. It included drilling of the burner ports where necessary; that is, through the years some burners had become corroded and the ports had become plugged. When it was necessary to clean these the ports they were drilled for natural gas. Industrial burners were given very special attention, and in some cases new burners had to be designed, purchased, and installed. Refrigerator burners for manufactured gas were replaced with natural gas burners. Then, of course, some special situations arose which were handled as the occasion demanded.

## e. Summary

I would like to emphasize that the method by which the Philadelphia Electric Company went to a higher Btu standard was almost entirely a production problem. The appliances had to be adjusted, of course, but most of the details of the changeover concerning the gas to be made and the performance of the appliances depended almost entirely upon the work done in the production plants. There was not a single thing that had to be done in the distribution system. There were no valves to install, no mains to cut off, no sectionalizing to be accomplished. The residents of the various areas were not inconvenienced by large holes in the street and the accompanying mud and dirt. There were no cases of plugged pilots or automatic controls which were occasioned or would have been occasioned by dust which is stirred up when the direction or the rate of flow of gas is changed in distribution and transmission mains.

# Data from Completed Changeover

It is one thing to talk "theory"; it is another thing to prove theory. Therefore, some statistics from the actual changeover will be of interest.

The number of orders handled and appliances converted are shown in Table 16.

Explanatory notes for Table 16:

a. *By "customers"* is meant the number of accounts that are on the Company's meter reading routes. It includes a number of apartment houses with central metering for all the apartments.

b. *By "conversion orders"* is meant the orders actually issued. An order was issued for every dwelling or apartment encountered. This explains the reason for the number of orders being more than the number of customers. For example, a centrally metered apartment house with 100 apartments would be "one customer," but "100 conversion orders."

c. *The CGI (can't get in) orders* experienced were only 4.8 per cent of the total orders issued. To us this demonstrates the willing cooperation given us by our customers; that they endeavored to be at home when the appliance adjustment man was to arrive.

Every CGI order was attended to before the next higher Btu gas was distributed. In a few cases, where access was impossible, the service was cut off at the curb line.

d. *Domestic appliances* included all appliances normally found in homes: ranges, water heaters, refrigerators, hot plates, radiant heaters, gas irons, etc.

e. *Commercial appliances* included such as tailors' steam boilers, restaurant equipment, dentists' torches, college laboratory equipment, etc.

f. *Industrial equipment* included apparatus found in factories, plants, etc., and included anything from small glass blowing torches to large heat treating furnaces, etc. The large number of orders shown includes each piece of equipment adjusted; if there were 100 glass blowing torches, they are included in the table as 100 appliances.

g. *House heaters.* The adjustment of house heaters was not made until the final gas (800 Btu, 0.58 specific gravity) was in the mains. It was felt that this method would assure a good adjustment for this appliance. In addition, it should prevent the many service calls which otherwise would be received at the start of the heating season when the heaters are turned on.

The 22 heaters shown as completed in the low specific gravity area are up to the time this paper was written.

### SERVICE CALLS HANDLED BY CONVERSION CONTRACTOR

In order to aid in keeping track of conversion activities in the field, the territory was divided arbitrarily into 64 districts with 32 in each of the high specific gravity and the low specific gravity areas. There was no similarity in size or shape; some covered much territory, some little. The number of meters varied from 750 to 8,000.

When the contractor entered one of these districts he became responsible for all gas appliance complaints received from that district so long as he was working in it, and for one week after. This arrangement was based upon the premise that if anything was wrong after the work was done, the customer would report it within one week. The Philadelphia Electric Company appliance servicemen handled all service calls after the one week expired.

The number of service calls handled by the contractor's servicemen are as follows:

### SERVICE CALLS HANDLED BY PHILADELPHIA ELECTRIC SERVICEMEN

The Philadelphia Electric Company appliance servicemen handled all service calls received after one week after the contractor finished a district. A compari-

TABLE 13

STEPS FOR INCREASING THE BTU IN P. E. CO. GAS CONVERSION MIXTURES OF COKE OVEN GAS + NATURAL GAS + AIR HIGH SPECIFIC GRAVITY AREA CONVERSION (100,000 CUSTOMERS)

| | Base Gas at Start | Intermediate Steps | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Production Change | None | x | | x | | x |
| Appliance Adjustment | None | | x | | x | |
| Btu | 520 | 565 | 650 | 703 | 800 | 800 |
| Specific Gravity | 0.67 | 0.660 | 0.630 | 0.610 | 0.580 | 0.580 |
| Hydrogen Percentage | 17 | 17 | 17 | 17 | 17 | 17 |
| Coke Oven Gas—% | 33 | 32 | 31 | 31 | 30 | 30 |
| Natural Gas—% | 30 | 38 | 47 | 52 | 62 | 62 |
| Inerts—% | 37 | 30 | 22 | 17 | 8 | 8 |
| Heat Input Change—%[1] | 0 | +9.5% | −15.1% | +9.9% | −15.7% | 0 |

[1]Related to the conditions existing after the completion of the previous step.

TABLE 14

STEPS FOR INCREASING THE BTU IN P. E. CO. GAS CONVERSION MIXTURES OF COKE OVEN GAS + NATURAL GAS + AIR LOW SPECIFIC GRAVITY AREA CONVERSION (70,000 CUSTOMERS)

| | Base Gas at Start | Intermediate Steps | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| Production Change | None | x | | x |
| Appliance Adjustment | None | | x | |
| Btu | 520 | 665 | 800 | 800 |
| Specific Gravity | 0.450 | 0.600 | 0.580 | 0.580 |
| Hydrogen Percentage | 47 | 21 | 17 | 17 |
| Coke Oven Gas—% | 84 | 38 | 30 | 30 |
| Natural Gas—% | 7 | 44 | 62 | 62 |
| Inerts—% | 9 | 18 | 8 | 8 |
| Heat Input Change[1] | 0 | +10.7% | −18.4% | 0% |

[1]Related to conditions existing after the completion of the previous step.

TABLE 15

CONVERSION PROGRESS

| | High Specific Gravity Area | | Low Specific Gravity Area | |
|---|---|---|---|---|
| Step | Btu (Table 13) | Date (1951) Effected | Btu (Table 14) | Date (1951) Effected |
| 1 | 565 | March 13 | 665 | June 8 |
| 3 | 703 | May 12 | 800 | July 27 |
| 5 | 800 | June 15 | — | |

TABLE 16

ORDERS HANDLED AND APPLIANCES CONVERTED

| | Refer to Note | High Specific Gravity Area | Low Specific Gravity Area | Total |
|---|---|---|---|---|
| 1. Customers, July 1, 1951 | a | 105,080 | 67,998 | 173,078 |
| Conversion Orders | b | 110,725 | 74,290 | 185,015 |
| 2. CGI (Can't Get In) Orders | | | | |
| Total experienced | c | 4,776 | 4,158 | 8,934 |
| % of Total Orders | | 4.3% | 5.6% | 4.8% |
| 3. Appliances Converted | | | | |
| Domestic | d | 182,072 | 113,853 | 295,925 |
| Commercial | e | 10,934 | 10,915 | 21,849 |
| Industrial | f | 10,676 | 9,449 | 20,125 |
| House Heaters | g | 24,888 | 22 | 24,910 |
| Total | | 228,570 | 134,239 | 362,809 |

TABLE 17

SERVICE COMPLAINTS HANDLED BY CONVERSION CONTRACTOR'S SERVICEMEN

| | Specific Gravity Area | | |
|---|---|---|---|
| Nature of Service Call | High | Low | Total |
| Flame adjustment | 2,521 | 1,129 | 3,650 |
| Pilot flame | 2,017 | 801 | 2,818 |
| Thermostats | 686 | 198 | 884 |
| Gas leaks | 321 | 103 | 424 |
| Appliances not converted | 497 | 603 | 1,100 |
| Miscellaneous | 820 | 519 | 1,339 |
| Total | 6,862 | 3,353 | 10,215 |
| Percent of total orders | 6.2% | 4.5% | 5.5% |

TABLE 18

COMPARISON OF SERVICE CALLS HANDLED BY P. E. CO.

Servicemen in the High Specific Gravity Area, March-June

| | Service Calls | | | |
|---|---|---|---|---|
| | | | Increase over Normal | |
| Month | Conversion 1951 | "Normal" 1950 | Number | Percent |
| March | 3,370 | 4,827 | −1,457 | −30.2 |
| April | 5,047 | 3,717 | 1,330 | 35.8 |
| May | 8,432 | 4,255 | 4,177 | 98.2 |
| June | 12,080 | 5,241 | 6,839 | 130.5 |
| Total | 28,929 | 18,040 | 10,889 | 60.4 |
| Calls per Total Customer (Customers—June 30) | 0.275 (105,080) | 0.178 (101,328) | 0.097 (3,752) | 54.5 (3.7) |

son of the calls handled through June, with the total calls for the same period during 1950, is shown for only the high specific gravity area in Table 18:

The conversion of this area was "completed" (Table 15) and the final gas was distributed beginning June 15. For the two weeks following, the service calls continued at the increased rate, then they started to decrease. By the end of July the rate was rapidly approaching normal.

SUMMARY

We are pleased with the field results of our conversion, to say the least. It is being completed on schedule; the troubles and complaints are less then were anticipated; the 300 to 400 conversion servicemen have done a satisfactory job; our customers have cooperated wonderfully; and the cost of doing the job will be about $12 per customer.

## Summary and Conclusions

That is the story of how the Philadelphia Electric Company reached its decision to supply 800 Btu, 0.58 specific gravity gas. If time had permitted, most of the points mentioned could have been expanded, but I feel that what has been said has given you the meat of our problem. Therefore, let me summarize the main points of what has been said.

1. We believe that the adoption of the triangular charts and a study of them *before* any physical testing work was attempted saved us an indeterminate amount of time in the solution of our problem. As it turned out, the gas selected from the charts proved to be the one adopted. By way of interest, the charts are used frequently now for solution of day to day problems of operations.

2. The adoption of the mixed gas permits us to obtain the maximum possible economical use from our present plant equipment. Utility commissions do not look with much favor upon the maintaining of idle plants in the rate base. We can justify our plants being in our rate base because they are necessary to maintain continuity of service.

3. Regardless of what might be reasonably expected to happen to the supply of our raw materials, we should be able to maintain uninterrupted service with substitute or supplemental gases of essentially the same burning characteristics as the base gas. This is important and necessary. With 100 per cent natural gas the problem of satisfactory substitute gases has not been settled by the gas industry, and, therefore, an interruption to the supply might present serious problems of service continuity to the utility.

4. The adoption of the new base gas of 800 Btu and 0.58 specific gravity permits us to continue the use of our own coke ovens. We do not expect to curtail operation but will use the coke oven gas to supply the stabilizing hydrogen to the city gas. This (a) keeps the ovens in the rate base, (b) gives our customers the beneficial effect of comparatively cheap coke oven gas in their gas rates, and (c) continues the production of coke for industry in these days of national preparedness.

5. Economies are effected by using our present raw materials, such as refinery oil gas, for peak shaving instead of contracting for larger quantities of additional natural gas now. The load factor charge for this natural gas would make the cost per therm for peak loads exorbitant. Our plan keeps this effect to

*(Continued on page 39)*

# Industrial Gas Nomenclature

Prepared by

D. A. Campbell

AGA Industrial Practices Committee and

Eclipse Fuel Engineering Co.

INDUSTRIAL PROCESSING GAS: Is that gas used to process materials, produce goods or render services which are transferred at the wholesale level; or those transferred at the retail level at a location away from the premises where such gas is actually consumed.

COMMERCIAL PROCESSING GAS: Is that gas used to process materials, produce goods or render services which are transferred at the retail level on the premises where such gas is used.

## A. GAS-AIR PROPORTIONING AND MIXING SYSTEMS FOR COMBUSTION

*High Pressure Air System* (Air pressure 5 psig or higher). A system using the momentum of a jet of high pressure air to entrain gas, or air and gas, to produce a combustible mixture.

*High Pressure Gas System* (Gas pressure ½ psig or higher). A system using the momentum of a jet of high pressure gas to entrain from the atmosphere all, or nearly all, of the air required for combustion.

*Two Valve System.* A system using separate control of air and gas both of which are under pressure. The valves, controlling the air and gas flows, may or may not be interlocked.

*Low Pressure Air System* (Air pressure up to 5 psig). A system using the momentum of a jet of low pressure air to entrain gas to produce a combustible mixture.

*Low Pressure Gas or "Atmospheric" System* (Gas pressure less than ½ psig or 14″ w.c.). A system using the momentum of a jet of low pressure gas to entrain from the atmosphere a portion of the air required for combustion.

*Mechanical System.* A system which proportions air and gas and mechanically compresses the mixture for combustion purposes. A central mixing unit may be used or individual appliances may each have its own mixer.

*Suction System.* A system applying suction to a combustion chamber to draw in the air and/or gas necessary to produce the desired combustible mixture.

## B. MIXERS AND MIXING DEVICES

*Air Jet Mixer.* A mixer using the kinetic energy of a stream of air issuing from an orifice to entrain the gas required for combustion. In some cases this type of mixer may be designed to entrain some of the air for combustion as well as the gas. Commonly used names of Air Jet Mixers include: "Low Pressure Inspirators," "Aspirators," "Fiomixers," "Mixjectors," "Mixing Tees," "Low Pressure Proportional Mixers," "Vari Flame."

*Automatic Mixer.* A mixer that automatically maintains within its rated capacity a substantially constant air/gas ratio at varying rates of flow. All types defined below can be designed to fit this classification.

*Gas Jet Mixer.* A mixer using the kinetic energy of a jet of gas issuing from an orifice to entrain all or part of the air required for combustion. Commonly used names of Gas Jet Mixers include: "Injector," "Lojector," "Venturi Mixer," "Two Stage Mixer," "Inspirator," "Hijector," "Tube Mixer," "Atmospheric Mixer," and "Bunsen Mixer."

*Manual Mixer.* A mixer that requires manual adjustments to maintain the desired air/gas ratio as rates of flow are changed.

*Mechanical Mixer.* A mixer using mechanical means to mix gas and air, neglecting entirely any kinetic energy in the gas and air, and compress the resultant mixture to a pressure suitable for delivery to its point of use. Mixers in this group utilize either a centrifugal fan or some other type of mechanical compressor with a proportioning device on its intake through which gas and air are drawn by the fan or compressor suction. The proportioning device may be automatic or require manual adjustment to maintain the desired air/gas ratio as rates of flow are changed. Names of Mechanical Mixers include: "Fan Mix," "Industrial Carburetor," "PreMix," "Fantype Mixer," "Combustion Controller," and "Diluter."

*Mixer, General.* A device for mixing gas and air in any desired proportions.

## C. BURNERS

*Atmospheric Burner.* A burner used in the Low Pressure Gas or "Atmospheric" system which requires secondary air for complete combustion.

*Blast Burner.* A burner delivering a combustible mixture under pressure, normally above 0.3″ w.c. to the combustion zone.

*Blast Tip.* A small metallic or ceramic burner nozzle so made that flames will not blow away from it, even with high mixture pressures.

*Burner, General.* A device for the final release of air/gas, or oxygen/gas mixtures, or air and gas separately into the combustion zone. Industrial gas burners may be classed as atmospheric burners and blast or pressure burners.

*Combination Gas and Oil Burner.* A burner which can burn either gas or oil or both together.

*Diaphragm Burner.* A burner which utilizes a porous refractory diaphragm as the port so that the combustion takes place over the entire area of this refractory diaphragm.

*Dual Fuel Burner.* A burner designed to burn either gas or oil but not both together.

*Enclosed Combustion Burner.* A burner which confines the combustion in a small chamber or miniature furnace and only the high temperature completely combusted gases, in the form of high velocity jets or streams, are used for heating. Trade names include: "Superheat," "Zigzag."

*Flame Retaining Nozzle.* Any burner nozzle with built-in features to hold the flame at high mixture pressures. Names for Flame Retaining Nozzles include: "Sticktites," "Ferrofix," "Staylites," "F. R. Nozzles."

*Gas-Oil Burner.* A burner designed to burn gas and oil simultaneously.

*Line Burner.* A burner whose flame is a continuous "line" from one end to the other. Normally applied to a blast burner.

*Luminous Flame Burner.* A burner which discharges non-turbulent parallel strata of air and gas to produce an extended flame of high luminosity.

*Multijet Burner.* A form of burner which generally consists of gas manifolds with a large number of jets arranged to fire horizontally through openings in a vertical refractory plate. These openings are of various shapes, round, square, clover leafed, etc. Combustion air may be supplied by natural, induced or forced draft. Complete assemblies combining burner, refractory plate, wind box, blower and controls are generally known as Forced Draft Boiler Burners. Trade Names include: "Lo-Blast," "Fan-Mix," "Flame King," "Gas Pak."

*Multiport Burner.* A burner having two or more separate discharge openings or ports. These ports may be either flush or raised. — — — — →

*Nozzle Mixing Burner.* A burner in which the gas and air are kept separate until discharged from the burner into the combustion chamber or tunnel. Generally used with low pressure gas (up to ½ psig or 14″ w.c.) and low pressure air (up to 5 psig).

*Open Port Burner.* Any type of burner that fires across a gap into an opening in the furnace or combustion chamber wall and is not sealed into the wall. Burners of this type include: "Torch Burners," "Tile Burners," "Box Burners," "Ventite Burners," "Burmix Burners."

*Pipe Burner.* General term covering any type of atmospheric or blast burner made in the form of a tube or pipe with ports or tips spaced over its length.

*Pressure Burner.* Same as Blast Burner.

*Proportional Mixing Burner.* An assembly which incorporates an automatic mixer and a burner as an integral unit. Trade names include: "L. P. Velocity," "H. P. Velocity," "Walltite."

*Radiant Burner.* A burner designed to transfer a significant part of the combustion heat in the form of radiation from surfaces of various shapes which are usually of refractory material. Trade names include: "Red Ray," "Duradiant," "Burdette."

*Ribbon Burner.* A burner having many small closely spaced ports usually made up by pressing corrugated metal ribbons in a slot or other shaped opening.

*Ring Burner.* (a) A form of atmospheric burner made with one or more concentric rings. (b) A form of burner used in firing boilers consisting of a perforated vertical gas ring with air admitted generally thru the center of the ring. Combustion air may be supplied by natural, induced, or forced draft.

*Single Port Burner.* A burner having only one discharge opening or port.

*Tunnel Burner.* A burner sealed in the furnace wall in which combustion takes place mostly in a refractory tunnel or tuyere which is really part of the burner. Common names for Tunnel Burners include: "Walltite Burners," "Impact Burners," "Hyperblo Burners," "Pyronic Burners," "Refrak," "Tunnel."

## Millionth Meter Installed by Public Service of N. J.

The one-millionth gas meter was installed in the territory served by Public Service Electric and Gas Company in Livingston, New Jersey. Only three other gas companies in the United States are said to have 1,000,000 or more meters each.

The one-millionth Public Service meter was appropriately plated in gold by the manufacturer, in honor of the occasion, and was turned on by Frederick A. Lydecker, vice president in charge of gas operation of Public Service Electric and Gas Company.

In commemoration of the event, Public Service, presented the customer a clothes drier heated by gas.

## BOILER FUEL HELD BACK BY NY-NJ-PA UTILITIES AS AID IN MEETING WINTER PEAKS

UTILITY companies operating in the Metropolitan New York-New Jersey area may take a bow if the Appalachian region should get by next winter without experiencing any severe shortage of natural gas.

These companies have just come to the aid of Columbia Gas System, Inc., in a big way to help the latter store underground as much gas as it can get to meet next winter's peaks.

Columbia decided it needed 225 million cu. ft. of natural gas a day this summer and fall—and it needed it in a hurry—if it was to raise its storage supplies from 97 billion cu. ft. at present to the 160 billion cu. ft. which it estimates it will need underground in Appalachian wells to ride out the coming winter.

Its appeal bore fruit. In a round-table conference at the Federal Power Commission's Washington headquarters Consolidated Edison Co. of New York and Public Service Electric & Gas Co. agreed to forego their portion of gas from Transcontinental Gas Pipe Line Corp. which they had been using as power house boiler fuel as a cheaper substitute for other fuels.

Brooklyn Union Gas Co.—and we shouldn't overlook Philadelphia Gas Works—agreed to hold back gas which others might use for boiler fuel.

For the gas thus surrendered by these co-operative utilities, Columbia Gas System has agreed to pay Transcontinental a price of 30 cents per Mcf.

The result: Columbia is getting its needed gas; and the utilities have relinquished voluntarily operating cost savings estimated at about nine cents per million Btu. This is the difference between their cost of 28.2 cents per Mcf for Transcontinental gas at 96 per cent load factor and the cost of the fuel which they previously had been replacing with natural gas.

Also deserving of credit for the unique development are the Federal Power Commission, which engineered the transaction, and the state regulatory authorities who gave their approval.

## SOUTHERN UNION GAS CO. IN NEW ALBUQUERQUE OFFICE BUILDING

**Night view of Southern Union Gas Company's new office building in Albuquerque, New Mexico. The modern Southwest design of the building, features terra cotta blocks and plate glass. The comfort of customers and employees is provided by dual-purpose Servel all-year gas air-conditioning equipment, cooling in summer and heating in winter. A 24-hour depository permits customers to pay bills with high convenience at any time of the day. Parking problems have been minimized by a large space adjacent to the building.**

**A Hospitality Room, designed to demonstrate an all-gas kitchen, will accommodate 150 persons and, in addition to gas company uses, will be available to the public.**

# News of the Gas Industry

## Trancontinental Pipe Line Compressor Station Open For Public Inspection

R. Stewart Bruns Jr., vice president, eastern division of Transcontinental Gas Pipe Line Corporation, with E. G. Boyer, center, and Charles Frazer, both of the Philadelphia Electric Company, during a recent inspection trip of Transcontinental's 9,600 hp Compressor Station 20 at Malvern, Pa.

Approximately 200 public utility representatives, local officials, businessmen and Transcontinental employees, participated in the inspection trip.

## Knighton and Keune Resign Servel To Be Firm's Distributor in Fla.

John K. Knighton and O. F. Keune have resigned as top Servel sales executives to become Florida distributors of Servel refrigerators and water heaters.

Their resignations were announced by W. Paul Jones, Servel, Inc., president. Mr. Knighton, who has been vice-president in charge of sales, and Mr. Keune, who has been manager of sales operations, have incorporated their distributorship under the name of Knighton-Keune Co. Mr. Knighton is president and treasurer of the new company and Mr. Keune is vice-president and secretary.

The general offices and service department of the firm will be located at 74 Northeast 74th St., Miami, with warehouses in both Miami and Orlando.

In making the announcement, Mr. Jones said: "Servel is pleased that Mr. Knighton and Mr. Keune will be the Servel distributor for Florida. They are equipped to do a splendid sales job in Florida."

## Koppers Adds to New Research Center at Verona, Pa.

Koppers Company, Inc., will embark on an enlarged and more unified program of research, with a major portion of the work to be centered at Verona, Pa., where new laboratories are now nearing completion, Gen. Brehon Somervell, president, announced early this month.

The company has purchased a plant site it formerly leased at Verona, rearranged its buildings and added a new building, with administrative offices, research library and conference rooms.

The new Verona center will provide enlarged and improved laboratory facilities and also allow extensive pilot plant work to be carried on.

## Betz and McKee Advance in Manufacturers L. and H. Co.

J. N. Betz has been named director of information for The Manufacturers Light and Heat Co. and associated Pittsburgh Group companies in the Columbia Gas System.

In making the announcement, W. L. Hutcheson, sales manager, also named James G. McKee to succeed Mr. Betz as assistant sales manager in charge of industrial sales.

Before serving in the latter capacity, Mr. Betz had been district sales supervisor in Cumberland, Md., for an associated company. Prior to that he was in charge of industrial gas sales and later district sales supervisor in Olean, N. Y., for another associated company.

Mr. McKee, who will now have his headquarters at The Manufacturers Light and Heat Co. general offices in Pittsburgh, has for more than a year been associated with the Cumberland and Allegheny Gas Co., at Cumberland, Md., as industrial engineer.

## John A. Hartzell Sales Manager of Koppers Division

John A. Hartzell has been promoted to the position of sales manager, engineering and construction division, Koppers Company, Inc., according to an announcement released early this month. He started work with Koppers in 1922 as a draftsman, later becoming engineering section head, plant operator, contract engineer and sales engineer. For the past five months he has been assistant sales manager of the division. In his new post he succeeds Ward L. Gable, retired, who will remain with Koppers as special sales consultant.

## Eureka Williams Promotes C. S. Stackpole to VP

C. S. Stackpole

C. S. Stackpole has been appointed vice-president in charge of the Williams Oil-O-Matic Division, Eureka Williams Corporation, according to H. W. Burritt, president of the corporation.

Mr. Stackpole fills a position vacant since L. A. Casler, executive vice-president, assumed responsibility for defense work and overall production early this year.

Before joining Eureka Williams, Mr. Stackpole was vice-president and general sales manager of the Airtemp Division of Chrysler Corporation. He was formerly manager of merchandising and domestic sales for Consolidated Gas, Electric Light and Power Company, Baltimore, Md.

A native of Lynn, Mass., Mr. Stackpole graduated from Brown University in 1922. His first job was with Stone and Webster through Blackstone Valley Gas and Electric Company, Pawtucket, R. I. He also worked for the Fall River Gas Works Company, Fall River, Mass., and later for Virginia Electric and Power Company.

J. N. Betz

George Miller

## George Miller is New Caloric Advertising Manager

George Miller has been appointed advertising director of Caloric Stove Corporation, according to Julius Klein, president. His office will be in Caloric's Philadelphia headquarters. Mr. Miller was advertising agency account executive for Caloric and supervised production of the Caloric Chronicle, daily gas convention newspaper.

## Andrew R. Olson Elected VP-GM of Suburban Propane

Andrew R. Olson has been elected to the new office of vice-president and general manager of Suburban Propane Gas Corporation, it was announced by Mark Anton, president.

Mr. Olson joined the company in 1948 as manager of operations and later became manager of sales and operations. He has been identified with the liquefied petroleum gas industry for virtually his entire career. Shortly after graduation from the University of Kansas in 1929, Mr. Olson joined Phillips Petroleum Co., as a salesman in a Philgas district at Pontiac, Michigan. He later served in Niantic and Windsor, Conn., as district manager and in 1941 was appointed regional manager of fifteen of the company's midwest bulk plants. In 1943 he went to Bartlesville, Okla., as manager of the Philgas wholesale division.

Suburban Propane, with headquarters in Whippany, New Jersey, operates a gas business in fourteen eastern states, serving more than a quarter of a million customers.

## Detroit-Michigan Stove Co. Reduces Range Prices

A substantial price reduction in two models of the basic five-model gas range line of the Detroit-Michigan Stove Company was announced early this month by L. E. Clancy, director of sales.

The price cut, effective immediately, is on the wholesale price paid by the company's dealers.

Models affected by the price reduction are the Detroit Jewel 8100 and 81007 and the Garland 5100 and 51007, all full 38-inch divided top ranges.

"Despite the fact that our production in coming months will be limited necessarily by governmental restrictions, a fact which in volume production industries always forces an increase in cost per unit, we are reducing prices on our lowest priced and high volume ranges without sacrificing quality," Mr. Clancy said.

## Tapecoat Appoints Coe For Pittsburgh Area

Russell H. Coe

Russell H. Coe has been appointed to represent The Tapecoat Company on their coal tar tape for pipe joint protection, in Ohio, West Virginia and western Pennsylvania. He was formerly with Pittsburgh Coke and Chemical Company, in charge of coatings, and also was associated with Pipe Line Service Corporation. His headquarters will be in the Park Building, Pittsburgh.

A. R. Olson

Martin Gibbons

## Martin Gibbons New Manager of Dealer Relations at B.U.G. Co.

Martin Gibbons has been appointed dealer relations manager for The Brooklyn Union Gas Company. Mr. Gibbons replaces "Jim" Howley, who has retired. He has been with Brooklyn Union for eighteen years, starting as a salesman, then as employee relations supervisor, kitchen program supervisor, and most recently district sales manager. In his new assignment, Mr. Gibbons will supervise Brooklyn Union's relations with about 1,200 plumbers.

## John C. Peterson Named VP and GM of Manufacturers L and H Co.

John C. Peterson has been named vice president and general manager of The Manufacturers Light and Heat Co., effective January 1, Chas. E. Bennett, the company president said. Mr. Peterson also will be vice president and general manager of the Pittsburgh Group companies of the Columbia Gas System.

He has been vice president, secretary, and general counsel of the Pittsburgh Group companies since 1948 and will continue to have his office in Pittsburgh.

Mr. Peterson succeeds Irving K. Peck, recently appointed a vice president of Columbia Gas Service Corporation.

Mr. Peterson studied mechanical engineering at Carnegie Institute of Technology, later transferred to the University of Pittsburgh, where he received a B.S. degree in 1926. He was graduated from the Yale University Law School in 1929, and joined the Pittsburgh Group Companies in 1930. Assigned to the legal department in 1938, he became assistant secretary in 1940, and secretary in 1946.

## Donald C. Holtz to Manage American Meter Dallas Plant

American Meter Company has announced the appointment of Donald C. Holtz as manager of the new Dallas Orifice Meter assembly plant and warehouse. Mr. Holtz was first employed at the Erie factory of American Meter in 1935 and was engaged in production work until 1940. During World War II he served four years in the U. S. A. Corps of Engineers and was assigned for one year to the Office of Strategic Service in the China theater. He was honorably discharged with the rank of 1st Lieutenant.

## Mahlon B. Taylor

Mahlon B. Taylor, an assistant treasurer of The Philadelphia Gas Works Company, died on December 17th. He was also assistant manager of the utility's general accounting department. Mr. Taylor's service with the Gas Company dated from 1900. He became assistant treasurer in 1940 and assistant manager of the general accounting department in 1945. Mr. Taylor was a Mason, Progressive Lodge #609 F. and A. M., and a member of the National Association of Cost Accountants, American Gas Association, Pennsylvania Gas Association and the Anglers Club, Absecon Island, New Jersey. He is survived by Mrs. Mahlon B. Taylor and a son, Mahlon A.

## J. Phillips Cosgrove

J. Phillips Cosgrove, executive vice president of American Radiator & Standard Sanitary Corporation passed away in New York, after a brief illness.

In 1951 he was named executive vice president. He had been a member of the corporation's board of directors and of the executive committee.

## James M. Brown

James M. Brown, manager of the Cleveland district industrial sales office of Surface Combustion Corporation, passed away on December 3, 1951.

Mr. Brown, 50, born in Pittsburgh and a graduate of Carnegie Institute of Technology, had been associated with the Surface organization since 1927.

## Alfred P. Brill

Alfred Polland Brill, pioneer gas water heater executive, died in Pittsburgh, Pa., on December 11.

Mr. Brill, an early associate of Edwin Ruud, joined the Ruud Company in 1902. Progressing through the offices of secretary and treasurer and vice president, he succeeded Mr. Ruud as president in 1932, became chairman in 1944, and retired in 1945. Mr. Brill, 75, was associated with Ruud for 43 years.

## Modernized Customer Contact System in Houston

*(Continued from page 17)*

correct answers given. Courtesy, friendliness and cordiality were strongly emphasized throughout the training period.

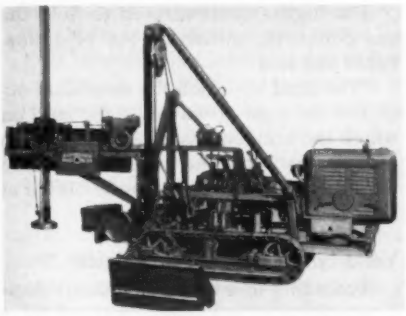
To give the new system wide flexibility, many division office personnel in various job classifications were trained for contact work. Thus, all clerks are equally at home operating in the telephone center or at the reception desks, and many of them handle other office duties during slow days.

While the company reports that no figures have been maintained that would indicate the number of customers per employee that can be handled under the new system as compared with the old, the management is convinced that it is already earning dividends in terms of improved customer relations.

## NEW EQUIPMENT

### Cleveland Tamper-Backfiller-Crane

Cleveland Trencher Company's "Model 80" is a one-man machine that tamps, backfills, lays pipe, unloads and handles pipe, sheathing, etc. and does light crane work. The machine is mounted on a crawler having 24 separate travel speeds, ranging from one foot per minute up to 2⅛ miles per hour, coupled with high stability and maneuverability. Three-way simultaneous action, tamps and backfills as it travels, gives it speed in these operations.

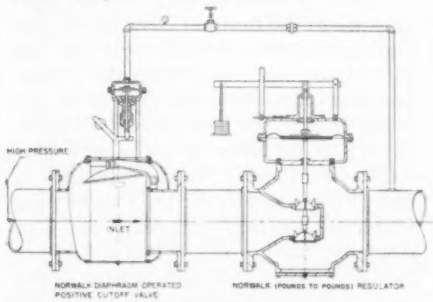


The tamper delivers a 380 ft.-lb. blow, 45 times each minute. The backfiller is a conventional drag-line type with a telescopic boom. Elimination of all excess weight permits use over sidewalks and lawns with safety. It backfills from either side of trench.

The power-operated boom lays pipe speedily. Light crane duties involved in trench operations are within the scope of the machine. Without extra counterweights, it will lift a weight of 6,000 pounds, located three feet from the edge of the crawler track. The Cleveland Trencher Co., 20100 St. Clair Ave., Cleveland, O.

### Norwalk Safety Valve

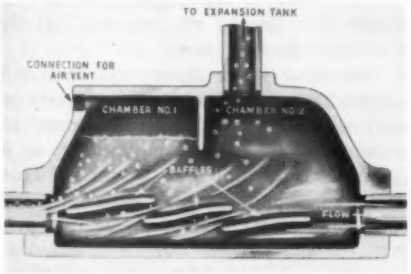
A new positive safety valve for use by gas companies converting their distribution systems to high pressure natural gas has been introduced by Norwalk Valve Company, South Norwalk, Conn. A diaphragm operated positive cut-off valve, it can be used on low and intermediate pressures.




This fabricated check valve, installed "in reverse" is held open by the lever and trigger arrangement shown in the illustration. The trigger is released by the operating diaphragm of the small valve. The diaphragm can be set to spring the trigger at any predetermined pressure, after which no spring or other medium is required to close the valve. Dropping by gravity, it is held closed by the high pressure. It can be reset manually without disconnecting or use of tools.

### Hot Water System Air Scoop

A new Air-Scoop for removing air from hot water heating systems is announced by Taco Heaters, Inc., 137 South Street, Providence 3, R. I.




They claim it is simple to install and a service free unit, cast in one piece. It requires no adjusting or redraining of system after installing. As air and water enter the Air-Scoop, bubbles are scooped up by the first baffle and rise into the upper chambers. Air bubbles that pass the first baffle are scooped up by the second or third. Air that accumulates in chamber 1 is removed from the system by the air valve and air from chamber 2 passes into the expansion tank to act as an air cushion. If air completely fills the expansion tank and backs into the Air-Scoop, the excess will be removed by the air valve without disturbing the operation of the system.

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CIVIL DEFENSE PROTECTIVE EQUIPMENT. This booklet offers an outline of action for welfare, warden, fire, public warning, rescue, engineering, law enforcement, transportation, and health services.

Guidance for the booklet was obtained from records of countries subjected to aerial attack in World War II, the National Security Resources Board's manual, United States Civil Defense, and experiences in safety service to industry. A table of equipment for civil defense services is included. Equipment is broken down in a table according to its function and its use by the various services. Full descriptions, both practical and technical, are given for every piece of equipment useful in civil dedense. 28 pp. Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh 8, Pa.

THE BEST WAY TO VENTILATE A KITCHEN. This bulletin gives details of the newly redesigned Stanthony Ventilating Hoods. It includes photos of two new styles, gives range of colors available, with complete specifications of the hoods and blower units. The new hoods fit under standard cabinets over ranges and the manufacturer claims higher efficiency because of closer proximity of the hood to the range. Roughing-in details and dimensions are given. Bulletin A1A No. 30-D-1. 4 pp. Stanthony Corporation, 6900 San Fernando Road, Glendale 1, California.

## BOOKS AND BULLETINS

WHY HEAT PROCESSING? This bulletin emphasizes the increasing need for precision in heat processing that is comparable with the precision in chemical compounding, metal machining, glass forming, paper making and textile production. Principles of heat application to a wide variety of solid and fluid products are illustrated and described in Bulletin S-7.2. 4 pp. Selas Corporation of America, Philadelphia 34, Pa.

RADIAMATIC PYROMETERS. The Brown line of *Radiamatic* pyrometers is completely described in this new bulletin. Included are sections on operation, theory, constructional features, engineering specifications, accessories, and typical applications. Many photographs and line drawings supplement the written information. Catalog 9300. 28 pp. Minneapolis-Honeywell Regulator Co., Station 40, Philadelphia 44, Pa.

DESIGN ADVANTAGES OF SPENCE REGULATORS. This new bulletin features a large cutaway illustration of a typical Spence pilot-operated regulating valve with detailed explanations of five design features. In addition, it shows how the control function can be changed by using a different sensitive pilot. Bulletin 700. 4 pp. Spence Engineering Company, Inc., Walden, N. Y.

PREPARED GAS ATMOSPHERES. A new illustrated bulletin on industrial applications of gas chemistry for heat treating. Exothermic and endothermic type atmosphere generators are described and the gas generation processes schematically diagrammed. Compositions of each gas atmosphere and the respective heat treat process applications are described. In addition, notable examples of furnace design applications for continuous or batch production controlled atmosphere heat treating are presented.

The gas constituents, generator capacities, application data and operating costs for all of the prepared gas atmospheres are tabulated for handy reference in selecting atmospheres. Bulletin SC-155. Surface Combustion Corporation, Toledo, O.

LET OUTDOOR WEATHER CONTROL . . . HEAT. Indoor-outdoor temperature control, the Weather-Flo, is described in a new bulletin. Details include construction and operation of this control which is said to anticipate weather changes and adjust heat input accordingly. Instructions are given for adjusting the control and making desired changes without the need for calculations. Bulletin A-751. 4 pp. Automatic Devices Co., Inc., Western Springs, Ill.

BARCO RAMMER. Bulletin with detailed information, including new production data, for figuring work schedules and costs on soil compaction jobs. Of special interest to builders, contractors, supervisory engineers, and project managers is a discussion of the use of soil compaction as a means of attaining greater permanence, lower costs, and earlier completion dates. Bulletin 621. 8 pp. Barco Manufacturing Co., Dept. R62, 1801 Winnemac Ave., Chicago 40, Ill.

## Review of High Court Gas Law Suits

*(Continued from page 27)*

for $10,000.00 actual damages and $15,000.00 punitive damages.

After the suit passed through several courts Rauch was awarded $750.00 damages against the gas company. The higher court reversed the verdict, saying:

"It is not necessary, in order to recover general damages for words that the plaintiff (Rauch) would have suffered any actual or constructive pecuniary loss. In such action, the plaintiff is entitled to recover as general damages for the injury to his feelings which the libel of the defendant has caused and the mental anguish of suffering which he had endured as a consequence thereof. There was no actual damage shown by the testimony in this case, and plaintiff was entitled to nominal damages, if any. Therefore, we find that the judgment for actual damages of $750.00 is excessive."

### Cylindrical vs Spherical

It seems that in the recent past a great deal of argument and controvery has arisen over the question whether a cylindrical or spherical tank will withstand greater pressure for storage of gas.

For example, in Moran v. Pittsburgh-Des Moines Steel Company, 183 Fed. (2d) 467, the higher court laid down this law: In a suit for accidental death caused by explosion of a tank designed and constructed by a manufacturer for use by a public utility company in storage of liquefied gas, the jury may hold the manufacturer liable if it decides that the manufacturer negligently designed and constructed the tank.

In this case it was alleged that the manufacturer was liable because it designed and constructed a cylindrical tank rather than a spherical tank. However, the higher court held that the jury must decide whether the tank exploded because it was a cylindrical tank rather than a spherical tank.

### Governmental Functions

The higher courts very consistently hold that ordinarily a municipality is not liable in damages for injuries to persons or property resulting from acts of its officials who perform governmental duties.

The courts hold that governmental functions relate to "maintenance, conduction and operation" of municipal business departments operated for benefit of the citizens, *without profit* to the municipality and usually without any charge or expense to the citizens excepting, of course, indirect taxation.

While a municipal corporation is not ordinarily liable for financial losses and injuries effected citizens resulting from the negligence of its officers when performing a governmental function, the courts hold that municipalities are liable for the creation or maintenance of "nuisances" whether in the performance of their governmental functions or otherwise. See Miller, 257 N. Y. Supp. 33.

Moreover, a municipality always is liable for "taking of property" under "eminent domain" laws.

Hence, a gas company can sue and recover damages from a state, county or city which requires the gas company to remove or relocate its equipment, as a pipe line, for public improvements. This is so because the United States and various state constitutions provide that private property shall not be taken, destroyed or damaged for public use without just compensation, irrespective of governmental functions.

For example, in Northern Natural Gas Company v. Blue County, 47 N. W. (2d) 106, it was shown a new county ditch for health purposes was established by order of the county board. In general, the ditch follows a natural swale through the area to be drained. Since 1939, a gas company has maintained a gas transmission pipe line through the area which the county ditch was intended to drain. The construction of the new ditch necessitated replacement and relocation of the pipe line by the gas company.

The counsel for the county argued that the county should not be held liable to the gas company because the new ditch was necessary for public health, and therefore involved governmental functions. Nevertheless, the higher court held the county liable to the gas company for the full expense of removing and relocating the gas pipe line. The higher court said:

"There should be no question that respondent in establishing the county ditch was exercising its delegated power of eminent domain. So it is immaterial that, from the standpoint of public health, the police power justifies the drainage. The property is taken or damaged, not by the police power, but by that of eminent domain. Hence, the right to compensation is absolute. Liability for damages to private property is put on the same basis as the taking of private property. Clearly, here there has been a taking or damaging of appellant's (gas company's) private property for a public use."

For other higher court cases which hold that a gas company is entitled to recover damages for the reasonable cost of relocating a gas pipe line see Panhandle Eastern Pipe Line Company v. State Highway Comm., 294 U. S. 613; and Cities Service Gas Company v. Riverside Drainage Dist., 137 Kan. 410.

### Deed Is Conclusive

According to a late higher court decision, if a deed to a gas pipe line right of way does not specify the depth the pipe must be buried, there can be no liability on the part of the gas company for injuries caused by the pipe being near the surface of the ground.

For example, in Home Company v. I. R. & G. Company et al., 50 So. (2d) 49, it was shown a Farmall Tractor was destroyed by fire when a plow it was pulling struck and broke a gas line buried only a few inches deep.

The higher court refused to hold the gas company, owner of the pipe line, liable and said:

"The deed by which the defendant acquired the right-of-way over the land on which the accident occurred contains no requirement that the pipeline shall be buried below plow depth, or be buried at all."

### Validity of Gas Rate Schedules

According to a late higher court decision, excessive gas rates charged by a gas company in accordance with its filed schedules allowed by the Public Utility Commission cannot be questioned in court proceedings between the customers and the company. This is so although the alleged excessive gas rates are based on improper and fictitious operation costs of the gas company.

For example, in Sullivan et al. v. Boston Consolidated Gas Company, 97 N. E. (2d) 535, a plurality of gas consumers and a city sued the Boston Consolidated Gas Company for refunds of sums which they contend were wrongfully exacted from them by the gas company under the terms of a fuel charge which the Public Utility Commission had ordered the gas company to incorporate in its filed rates.

The important legal differences involved the order of the Public Utility Commission which authorized the gas rate increase.

The facts are as follows: All the capital stock of the Boston Consolidated Gas Company is owned by Eastern Gas and Fuel Associates from which the former purchases ninety-five per cent of all gas distributed by it. The Boston Consolidated Gas Co. entered into a new contract with Eastern which contained a fuel clause whereby the price to be paid Eastern by the Boston Consolidated Gas Company for gas would increase in accordance with a specified formula *as the cost of coal* to Eastern increased. This contract was approved by the Commission after some modification not here material. Later the Boston Consolidated Gas Company filed a schedule of rates, known as "M.D.P.U.99" in which was incorporated a fuel charge providing that whenever the price of gas bought by

the Boston Consolidated Gas Company under its contract with Eastern should be increased by application of the fuel clause in the contract, *the price of gas to its consumers* should be increased according to a specified formula.

The Commission disallowed this schedule and ordered the Boston Consolidated Gas Company to file a new schedule known as "M.D.P.U.No. 100" which should contain a fuel charge, prescribed in precise words by the Commission. This prescribed fuel charge, instead of providing that the price of gas to consumers should be increased with the increase in the price paid by the Boston Consolidated Gas Company to Eastern for gas, provided that the price of gas to consumers should be increased with the increase in the cost of coal to Eastern. Then the Boston Consolidated Gas Company filed the schedule "M.D.P.U. No. 100," containing the fuel charge precisely as ordered by the Commission and making the increase in the price of gas to consumers depend upon the increase in the cost of coal to Eastern and not, as in schedule "M.D.P.U.99," originally filed by the Boston Consolidated Gas Company, upon the increase in the price of gas bought from Eastern by the Boston Consolidated Gas Company. In the meantime the Office of Price Administration, acting under the Emergency Price Control Act of 1942 issued a general regulation (7 Fed. Reg. 3153-3157) which forbade Eastern to charge the Boston Consolidated Gas Company more than it had previously charged.

The result was that the price of gas to the Boston Consolidated Gas Company did not rise during the period while this order was in force, but nevertheless the Boston Consolidated Gas Company continued to make a fuel charge to the consumers based upon the cost of coal to Eastern in accordance with schedule "M.D.P.U.No.100."

Hence, the gas consumers sued the Boston Consolidated Gas Company for refunds on overcharges based on the alleged increased cost of coal which, in fact, the Boston Consolidated Gas Company did not pay. The higher court refused to order the refunds, saying:

"Why the department (Public Utility Commission) made this change we do not know. But clearly it intended to make it. It is not wrongful for a gas company to charge its customers the rates established by an order of the department. It is settled that rates charged by a public service company in accordance with its filed schedules allowed by the department cannot be questioned in court proceedings between the customers and the company."

For further legal information on the validity of peculiar and unusual gas rate schedules allowed by the Public Utility Commission, see Edison Electric Illuminating Company of Boston, 242 Mass. 305; Gurney Heater Manufacturing Company v. New York, 162 N. E. 897; Wyatt v. Boston Consolidated Gas Company, 65 N. E. (2d) 320.

## Irving K. Peck Named VP of Columbia Gas Service

Irving K. Peck, vice president and general manager of The Manufacturers Light and Heat Company and associated Pittsburgh Group companies of the Columbia Gas System, has been named vice-president of Columbia Gas System Service Corporation, where he will have the responsibility for procuring natural gas from the Southwest.

Mr. Peck studied geology at the University of Illinois, and in 1921 was graduated in chemical engineering from the Massachusetts Institute of Technology. During the following 15 years he served as operating engineer for The Peoples Gas Light and Coke Co., Chicago; manager of gas and water property operations for the Midland United Co., Chicago; and later as assistant vice president of the Boston Consolidated Gas Co.

In 1936, he became president and general manager of the New York group of properties of the Columbia Gas System. He became vice president, general manager and director of the Pittsburgh Columbia gas companies in 1946.

## Niagara Mohawk, Pittsburgh, Chicago Curb Industrial Gas

Industrial use of natural gas was curtailed in several eastern and midwestern states in mid-December as extremely cold weather caused a sharp increase in demand for the fuel for househeating. Niagara Mohawk Power Corp. at the request of its supplier, New York State Natural Gas Co., ordered industries using natural gas on an interruptible basis to reduce their consumption by 75 per cent.

East Ohio Gas Co. put in effect some curtailment of gas for industrial use. Manufacturers Light & Heat Co. of Pittsburgh ordered a 25 per cent cut in industrial consumption for one day only. Ohio Fuel Gas Co., also enforced an industrial curtailment from 8 a.m. to 12 midnight on December 17.

Seventeen large-volume interruptible users were cut by Peoples Gas Light & Coke Co., Chicago, for the duration of the cold snap. In Michigan, where temperatures hit −8° F., Consumers Power Co. enforced temporary industrial restrictions in the Pontiac region, normal operations were maintained in Flint, Saginaw and Jackson.


THE GAS INDUSTRY TODAY DEMANDS:

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3 CLOSER EXECUTIVE SUPERVISION OF OPERATION

4 GETTING THE MOST OUT OF MANPOWER

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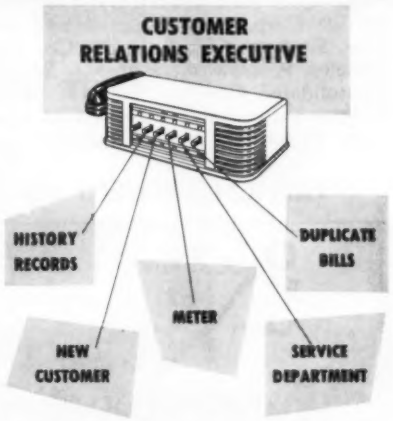


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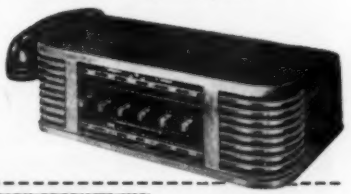

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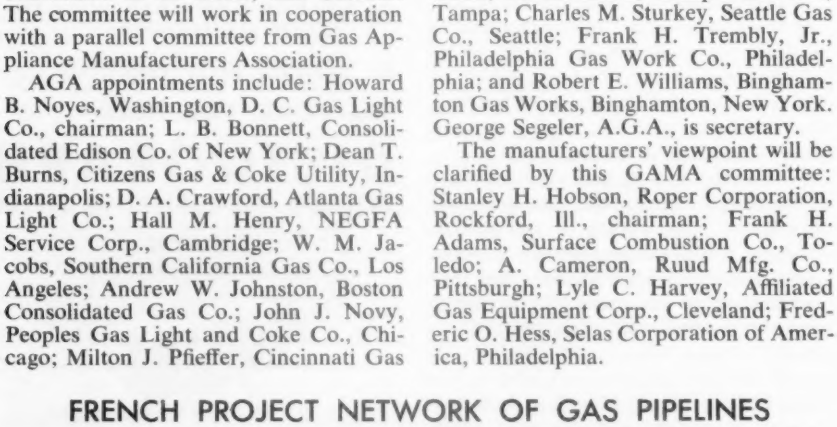
## CUSTOMER SERVICE RESPONSIBILITY COMMITTEES APPOINTED BY AGA AND GAMA

Customer service responsibility within the gas utility industry will be delineated from the gas companies' viewpoint by a new committee just announced by American Gas Association, and appointed as the result of authorization by the association's Executive Board at the annual convention in St. Louis, last October. The committee will work in cooperation with a parallel committee from Gas Appliance Manufacturers Association.

AGA appointments include: Howard B. Noyes, Washington, D. C. Gas Light Co., chairman; L. B. Bonnett, Consolidated Edison Co. of New York; Dean T. Burns, Citizens Gas & Coke Utility, Indianapolis; D. A. Crawford, Atlanta Gas Light Co.; Hall M. Henry, NEGFA Service Corp., Cambridge; W. M. Jacobs, Southern California Gas Co., Los Angeles; Andrew W. Johnston, Boston Consolidated Gas Co.; John J. Novy, Peoples Gas Light and Coke Co., Chicago; Milton J. Pfieffer, Cincinnati Gas and Electric Co.; R. A. Puryear, Jr., Alabama Gas Corp., Birmingham; James C. Reid, Southern Union Gas Co., Dallas; J. D. Roberts, Mountain Fuel Supply Co., Salt Lake City; W. G. Rogers, East Ohio Gas Co., Cleveland; Herbert H. Ross, Oklahoma Natural Gas Co., Tulsa; A. H. Stack, Tampa Gas Co., Tampa; Charles M. Sturkey, Seattle Gas Co., Seattle; Frank H. Trembly, Jr., Philadelphia Gas Work Co., Philadelphia; and Robert E. Williams, Binghamton Gas Works, Binghamton, New York. George Segeler, A.G.A., is secretary.

The manufacturers' viewpoint will be clarified by this GAMA committee: Stanley H. Hobson, Roper Corporation, Rockford, Ill., chairman; Frank H. Adams, Surface Combustion Co., Toledo; A. Cameron, Ruud Mfg. Co., Pittsburgh; Lyle C. Harvey, Affiliated Gas Equipment Corp., Cleveland; Frederic O. Hess, Selas Corporation of America, Philadelphia.

## FRENCH PROJECT NETWORK OF GAS PIPELINES




*Courtesy* The New York Times

**The French pipeline project to take surplus gas from the Saar (1) and Lorraine (2) for delivery to the Paris area (3) and intermediate points along the line, with contemplated laterals to St. Quentin (4) and Troyes (5).**

Gas produced in the Saar and in Lorraine will be piped to Paris, when and if the ambitious project approved on December 31 by the French National Assembly is in operation.

Long distance gas pipelines are new in Europe, writes Lansing Warren, Paris correspondent, in reporting the project to *The New York Times*, and this $115-million project, scheduled for initial operation by the end of 1953, will deliver to the Paris area necessary additional supplies of gas from the surplus production of the steel and coal industries of the Saar and Lorraine. Communities on the Saar-to-Paris route also will get gas service from the line; laterals will be built to serve some cities and towns. Only 20 per cent of the Paris demand will be met by the new line, the remainder will be manufactured in local plants.

Government officials, Mr. Warren reports, acknowledged that a similar pipeline from the tremendous gas-producing German Ruhr to the Saar was under construction but, they say, a hook-up to France could be made only when the European coal and steel industries were merged under the Schuman plan.

Gaz de France, the nationalized company, expects to deliver cheaper gas through this pipeline, after a heavy deficit operation since nationalization. Fifteen uneconomical gas producing plants in the Paris area will be closed when the new pipeline is in operation and other plants may be taken over from Gaz de France by the communities along the line.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## Is 100% natural gas answer?

*(Continued from page 30)*

a minimum with our present contracted for quantities. This helps to keep down the fuel adjustment charge to our customers.

6. The changeover as carried out by the Philadelphia Electric Company was accomplished in the production plants and in the customers' premises. Not a single thing had to be done in the transmission or distribution system. No valves had to be installed, no mains had to be cut off, no blocking was required. This eliminated entirely the inconvenience and annoyance to our customers of many large holes in the street with accompanying mud and dirt. Furthermore, there were no complaints of pilots and automatic controls being shut off by the dust generally stirred up when directions of flow or rates of flow are changed in transmission or distribution systems due to sectionalizing. It can be summarized, then, that most of the preliminary work was done in the production plants and laboratories, and the conversion of the customers' appliances was done by the contractor and our own appliance servicemen in a satisfactory manner.

7. The method has been received favorably by the customers and the number of complaints has been less than our pre-changeover hopes had anticipated. No trouble has occurred from over gassing by 10 per cent, and the under gassing has not appeared to be too objectionable to our customers.

8. Our exhaustive preconversion interchangeability tests have proved to be accurate and reliable, and the data which our laboratory staff predicted has been experienced. The decision to spend so much time on these pre-changeover researches has been proved a sound one. No one can estimate what expense the tests have saved us in preventing incorrect or haphazard adjustments to the customers' appliances.

9. So we return to the title question: *Is 100% Natural Gas the Answer?* Some companies have decided that 100 per cent natural gas is the answer. The Philadelphia Electric Company has decided that 100 per cent natural gas *is not* the answer for its situation.

### CORRECTIONS

"Is 100% Natural Gas the Answer?"

American Gas Association requests that these manuscript-errors be noted:

November, page 37, table 4, under "(b) *Quantities* . . ." "Daily Minimum" *should read* "Daily Maximum."

December, page 27, figures 2, 3, 4 and 5, "Sp. Gr." for coke oven gas, "0.62" *should read* "0.38."

## Brooklyn Borough Gas Applies to Cut Rates

Brooklyn Borough Gas Co. has voluntarily filed with the New York Public Service Commission a revised tariff adjusting rates for a total saving of $117,000 to its customers in 1952, Walter M. Jeffords Jr., president, said recently.

This move comes less than three weeks after completion of the changeover through which 100,000 Brooklyn customers are supplied with natural gas.

"Only the conversion to natural gas makes this downward adjustment in the rates possible," Mr. Jeffords pointed out. "If the company were still manufacturing gas, the rates would probably have to be increased instead."

## N. E. Coal and Oil Dealers Launch New Gas Fight

Coal, coke and fuel oil dealers in eastern Massachusetts are combining in a joint program to defend their tonnage and gallonage against the pending attack of natural gas, already available in several cities in that area, according to Anthracite Institute.

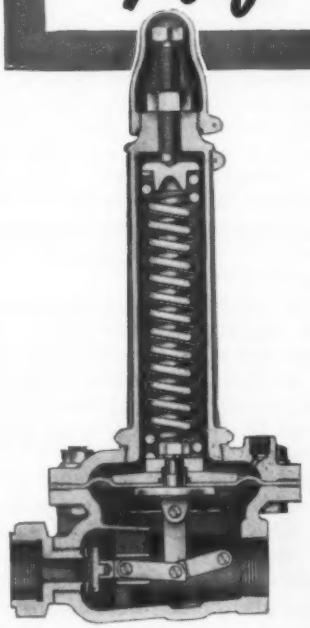
The coal group says, "The utility companies are at the moment engrossed with changeover problems, however, and have not as yet commenced an aggressive campaign for new customers."

The Consumers Fuel Institute program will carry its message through "Mr. Therm", with monthly statements and other circularized material.


IN THE HIGH PRESSURE FIELD

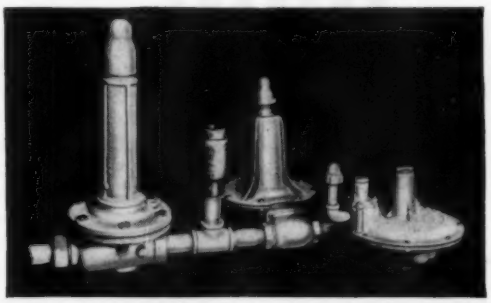
THERE IS SAFETY

IN *Reynolds* ...



**Accurate, Safe Control**

of tremendous pressures is an ever present problem in the gas field. Reynolds field Regulator illustrated at left is one of the many high pressure regulators built by Reynolds. It is thoroughly tested and proved in service. It handles up to 1,000 pounds safely reducing same to pounds. For more than fifty-five years Reynolds has designed and built gas regulators. Safety, accurate performance, years of service—these are some of the built-in factors responsible for Reynolds enviable position in the Gas Control Field.



*Reynolds Gas Regulator Co.*

ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

## Coordination of Gas in National pattern

*(Continued from page 15)*

and mixed gas companies in a single category, "because the manufactured gas industry, as such, is becoming smaller each year."

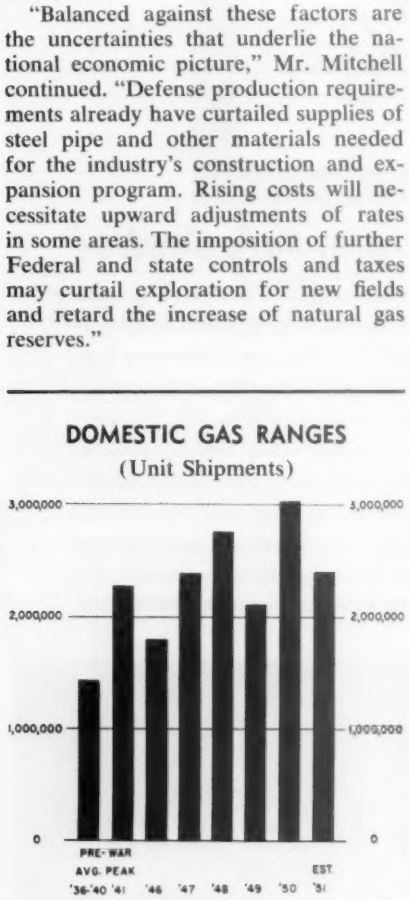
"All of the elements are present for a continuation of the industry's advances in 1952," was the forecast of George F. Mitchell, president, AGA, and president, The Peoples Gas Light and Coke Company.

"Consumer demand still exceeds the ability of gas utilities to serve such needs in some areas; the industry has allocated more than one and one-quarter billion dollars for an expansion program for next year; the defense production curve is rising, creating further demands for industrial utilization of gas; and some 800,000 new homes are predicted for next year.

"Balanced against these factors are the uncertainties that underlie the national economic picture," Mr. Mitchell continued. "Defense production requirements already have curtailed supplies of steel pipe and other materials needed for the industry's construction and expansion program. Rising costs will necessitate upward adjustments of rates in some areas. The imposition of further Federal and state controls and taxes may curtail exploration for new fields and retard the increase of natural gas reserves."

**DOMESTIC GAS RANGES**

(Unit Shipments)




### Adding 15,000 pipeline miles a year

Natural gas pipelines, including gathering, transmission and distribution lines in the United States today total more than 314,500 miles. This mileage is increasing at a rate of almost 15,000 miles per year. Manufactured and mixed gas transmission and distribution systems bring this mileage up to about 382,000 miles.

### Industrial responsibility not met

Gas utility statistics emphasize one industry situation that is regarded with considerable concern because the inherent problem is enlarging without specific industry-action to alleviate it.

Industrial gas utilization left the limitation of raising water to steam, long ago. Manufacturers of industrial gas utilization equipment, through their research and development programs, brought industrial applications of gas to its now-high degree of perfection. Research continues, so the end of development is not in sight.

Industrial gas equipment, really industrial heat processing equipment, is automatic, high speed, and gives uniform, dependable results. The gas industry's industrial consumers know the values they find in product-quality and the effects on production costs.

They know, also, that gas and gas equipment, in most northern industrial areas, implies the basic penalty of interruptions with the consequent need for costly auxiliary equipment. And, knowing that, some very logical users of gas and gas equipment, will not buy.

The new and the still-projected northern storage pools seem to have as their combined sole purpose the possibility of adding residential customers. There is no discernible regard for filling out the year-round demand from current industrial customers, with high needs for the gas in precise processing.

The rate argument, raised in connection with industrial consumers, falls on some deaf ears when the experience of at least one large industrial is recalled. His gratuitous offer to pay at least double the current rate for uninterrupted service was refused.

Examination of AGA gas utility statistics, which exclude direct pipeline sales to industrials and sales by LP gas dealers, reveal shifting relationships among the gas company customers.

Residential customers were up 3.7 per cent in numbers; commercial, up 4 per cent; industrial, up 2.9 per cent.

The volume of gas sold, as expressed in therms, shows a somewhat different order-of-gain: residential, up 14.8 per cent; industrial, up 13.6 per cent; commercial, up 9.1 per cent.

The order-of-gain shifts a second time under the important "Revenues." Industrial revenues were up 17.9 per cent; residential, up 12.0 per cent; commercial, up 8.5 per cent.

Specifically, the gas companies sold gas in these dollar-amounts during 1951: residential, $1,318,600,000; industrial,

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$565,530,000; commercial, $288,050,000.

Some of the observations, addressed to the gas industry during the past three years, come to mind.

"We must continue to develop an economically sound and technically competent fuel industry," Edward Falck, consultant on power and utilities to the National Security Resources Board, told AGA at the 1948 convention.

"Natural gas shortages will never be overcome until natural gas prices are brought into line with prices of competing fuels," he said. ". . . it is recommended that gas space heating be distinguished from ordinary utility-type service and be priced on a competitive basis."

More recently, at the 1951 convention, Frederic O. Hess, president, Selas Corporation of America, speaking as the retiring-president of GAMA, said that the gas distribution system, as built and operating, is the greatest ever conceived and that "it has grown to such importance in our overall economy that we must further develop it . . . the gas industry has assumed a major responsibility for the operation of our economic system. . . . It obligates us to look beyond immediate needs, beyond present requirements . . . to further advance and improve."

Mr. Hess advocated serious investigation of the possibility of developing auxiliary gas supplies in the eastern half of the country.

The advancing position of industrial consumers in the gas utility revenue columns, technological progress and the clearly indicated continuation of a high rate of industrial production seem to warrant, if not demand, attention to uninterrupted gas service for industrial processing purposes on a rate basis that is truly competitive with other fuels.

### Gas industry labor

Employees of gas utilities had average weekly earnings of $69.60 per week, revealed in the latest figures of the United States Bureau of Labor Statistics, and the average work-week was 41.8 hours.

Labor strikes were virtually unknown in the gas utilities and in the oil-and-gas producing areas during 1951.

The invalidation of the Wisconsin public utility antistrike law, by the Supreme Court, may encourage some unions to carry their 1952 demands forward in strike threats and possibly action.

### Gas in the price structure

The position of gas in the overall price structure is viewed with mixed reactions. On one hand it can be said that gas is, to use the well-worn bureaucratic term, holding-the-line. But, there is a more pertinent consideration: *value*.

Is gas being sold with its *true value* as the basis of price?

The BLS wholesale price index reveals that the cost of gas sold to industrial consumers by utilities is less than it was in 1926!

The prices of all materials and equipment in the BLS wholesale index moved up about 80 per cent since 1926 and gas has a decline of 3.4 per cent, even though there was a 6.4 per cent increase in the 1951 level over the 1950-comparable.

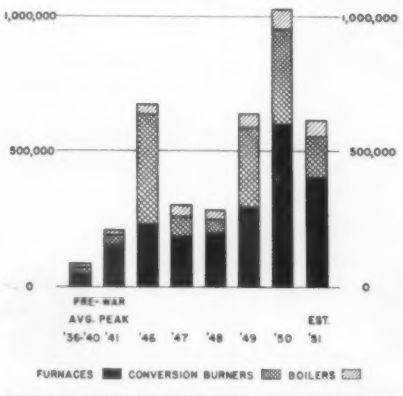
Rate cases now on file at FPC represent $100-million in rate increases. It is reasonable to expect that total to enlarge in the near future. The procedure used in the application for an increase by Tennessee Gas Transmission Co., may prove to be a pattern for the cooperative handling of the fi'ed and to-be-filed applications. FPC staff members, Tennessee and its customer-companies agreed to an $11.4-million increase on an $18-million application.

### Appliances down from scare-buying

While gas appliance sales during 1951 dropped somewhat below the record established in 1950, Louis Ruthenburg, president, Gas Appliance Manufacturers Association, properly points out that the buying stimulus in 1950 was fear of shortages after the outbreak of the Korean war.

**HOUSE HEATING EQUIPMENT**

(Unit Shipments)




Domestic gas range sales eased off to 2.4 million units last year from the previous record of three million.

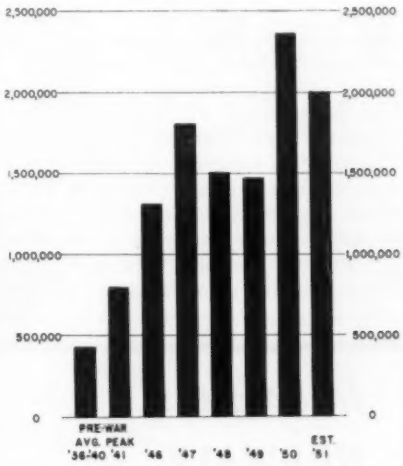
The deepest drop in appliance sales was felt by manufacturers of home heating units. They bumped at the end of the year with sales of 610,000 units after having sold more than a million in 1950. But, here too, the comparison with the average for the 1946-1949 period reveals a healthy 30 per cent increase.

Louis Ruthenburg

Automatic water heater sales in 1951 were at the two-million-unit level, after having passed the 2.3 million mark in the previous year. Disregarding the overstimulated-1950 sales, the 1951 record compares very favorably with the average for 1946-1949. The increase over that period amounts to 31 per cent.

**AUTOMATIC WATER HEATERS**

(Unit Shipments)




Mr. Ruthenburg, who is also chairman of Servel, Incorporated, noted that "the probability of another manufacturer [Rheem] entering the gas refrigeration field should be a stimulus to gas refrigeration and should also be helpful in related selling of other domestic gas appliances."

In viewing the indications for 1952, with materials restrictions and gas limitation orders in mind, Mr. Ruthenburg commented that "with the step-up in industrial production of all types, the producers of industrial gas equipment have one major problem—to produce the vast quantities needed, since most industrial production requires some form of heat processing with gas.

"The industry faces a year of problems, perhaps a hand-to-mouth operation in spots," he concluded, "but it is certainly no time to sit back and let the competition gain an advantage. The gas industry was guilty of a lack of promotional effort during World War II and suffered for it in the following years. We won't let that happen again." ➔

## Washington

The 1951 Washington regulatory scene closed without visible relief from confusion and 1952 can hardly be expected to go down in gas industry history as The Year of Great Clarity.

Congress passed the Bow amendment to the Defense Production Act and thereby left local gas shortages up to the state commissions. Although the House voted for enlarged rate case activity by the Office of Price Stabilization, in the Kennedy amendment, it has not had Senate action.

P.U.R. Executive Information Service of *Public Utilities Fortnightly*, in a review-and-predications issue, does not look for congressional action on a number of controversial measures relating to the Natural Gas Act, inasmuch as 1952 is a presidential year. There does appear to be a possibility that Congress will restrain OPS, to stay within the statutory limits which confine the agency to cases involving wholesale utility rates.

The United States Supreme Court upheld the Michigan Public Service Commission's order requiring Panhandle Eastern Pipe Line Co. to apply for a state certificate before selling to Ford Motor Company in an area already served by a public utility.

Also, the Wisconsin public utility anti-strike law was invalidated by the Supreme Court with the opinion that it conflicted with Federal labor laws.

The rivalry between the Federal Power Commission and the Department of the Interior, which came out in the open in a case involving El Paso Natural Gas Co., is apt to continue as pipeline applications include crossings of government-owned land.

Petroleum Administration for Defense has established procedures for allocating copper, steel and aluminum to gas utilities and while supplies may be difficult to obtain, there seems to be hope that PAD will apply the principle of assisting in the interest of related progress in important segments of defense production.

The four-to-one FPC decision finding that Phillips Petroleum Company is not a natural gas company under the definition of the Natural Gas Act has already had the result that FPC declined jurisdiction over independent gas producers.

The Supreme Court decision in the case of East Ohio Gas Company, permitting FPC to take jurisdiction over *intra*state pipelines that are connected with interstate pipelines at state line delivery stations remains a point of unrest and criticism. Congress did not act upon bills that sought to nullify the case, in itself an unusual procedure after a Supreme Court decision.

No predictions are available on the appointment of the FPC chairman, a now-vacant post. Vice chairman Harrington Wimberly is carrying the functions currently. The best interests of commission-operations would be served by an early appointment of an able new commissioner and the simultaneous appointment of chairman from the present roster of commissioners. Rocking along is just not good enough, for a regulatory body having the scope of responsibility and the volume of work now facing FPC.

## NYPSC Blocks ConEd Natural Gas Extension

The New York Public Service Commission recently ordered Consolidated Edison Co. not to convert any more of its territory to natural gas until there is positive assurance of continuity of service or adequate stand-by facilities in the event of failure or emergency.

Commission chairman Benjamin F. Feinberg said the corporation that transports natural gas to ConEd "has failed to complete additional or alternate facilities which could be used in the event of a break in the single line which extends from Texas to Manhattan." The commission order will prevent ConEd from converting the Riverdale section of the Bronx and the Marble Hill section, Manhattan, to natural gas.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***Pipe Line Equipment***
**New Hyde Park** **New York**

## Rocky Mountain Gas Association Elects Officers

The Rocky Mountain Gas Association elected these new officers for 1952 at their annual meeting in Denver: D. A. Bell, Bell Plumbing & Heating Co., president; William Van Genderen, Van Genderen Heating Co., vice president; D. E. Warner, The Warner Co., Inc., vice president; Roy G. Munroe, Public Service Company of Colorado, secretary-treasurer; also, as directors, G. M. Musick, architect; S. J. Neely, North Denver Furniture Co.; Ferrell von Trotha, Denver Fire Clay Co.

## 1953 A.G.A. Convention to be in St. Louis

The thirty-fifth annual convention of the American Gas Association will be held at St. Louis, during the week of October 26, 1953. Site of the convention was recommended by the time and place committee under the chairmanship of Oliver S. Hagerman, and chairman of the board, United Fuel Gas Company, Charleston, West Virginia.

The 1952 convention has been announced for the week of October 27 in Atlantic City.

## AGA Home Service Workshop

Sales promotion ideas, successful home service activities and know-how experiences will be featured on the three-day program of the American Gas Association Home Service Workshop at the Drake Hotel, Chicago, January 21-23, 1952.

Speakers from within and out of the industry have been scheduled by the Program Committee under leadership of Flora G. Dowler, The Manufacturers Light and Heat Company, Pittsburgh, chairman, Home Service Committee.

## Tex.-Ill. line adds 374-million

*(Continued from page 24)*

ical Survey, in 1928. The evidence indicated a dome with a tight cap rock overlying a deep sandstone. Physical exploration of the subsurface structure was started in late-1950.

Preliminary shallow drilling, with water well rigs, justified deeper explorations, with rotary rigs, to the 2,000-foot level.

### Salt water found in sandstone

Salt water was found in the sandstone. The formations at 1,300-1,400 feet, contained sulphur water, an indication that the salt water sand was overlaid with an impervious formation separating the two waters and that there was a good seal. The tests also indicated an impervious floor.

The investigations, said Mr. Hedrick, indicate that the Herscher region is suitable for effective underground storage of "something in excess of" 90-billion cubic feet and with a daily withdrawal capacity of 1.5-billion cubic feet.

The bottom hole sand pressure of the water in the Herscher Anticline was found to be 720 pounds. The company assumes that a gas injection pressure of greater than 1,100 pounds will be required to push back the water and form the desirable gas cushion on top of the water. The area investigated has a 100-foot sand thickness under 15,000 acres.

### Project cost—$36-billions

Plans for the Herscher Storage Project include a compressor station, dehydration plant, wells, gathering-injection lines, a line from the new Texas Illinois main transmission line, one or more lines to Joliet, the terminal of both the Texas Illinois and Natural Gas pipelines.

The initial cost of the Herscher project has been estimated at $18-millions for a minimum first-year storage and at $36-millions when the project is developed fully for the anticipated annual storage of 90-billion cubic feet.


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## Humble-Southern Agree to Exchange Gas

Humble Oil and Refining Company and Southern Production Company, Inc. have jointly announced an agreement for the exchange of natural gas between their companies. The agreement is to run for twenty years and provides a first call for each company on gas reserves in certain fields owned by the other estimated to be in each instance in excess of 700 billion cubic feet.

Humble has agreed to deliver to Southern Production a daily average of 75 million cubic feet of gas in exchange for delivery to Humble by Southern Production of a like volume. The agreement provides outlets for the gas from the respective leases at locations more convenient to the companies. Terms of the agreement, which is to be formalized later after certain contingencies are met, call for exchange of gas above ground.

A finding by the United States Treasury Department that the exchange provisions of the present agreement are non-taxable is a condition precedent to the agreement becoming effective.

## U.G.I. Announces Plan for Seven-Company Merger

United Gas Improvement Company announced that the Board of Directors approved and authorized filing with the Securities and Exchange Commission and the Pennsylvania Public Utility Commission a plan to merge all of its public utility subsidiaries into U.G.I. to form one company that would conduct the operations now being performed by these subsidiaries, all in Pennsylvania: Allentown-Bethlehem Gas Company, Consumers Gas Company (Reading), Harrisburg Gas Company, Lancaster County Gas Company, Lebanon Valley Gas Company, Luzerne County Gas and Electric Corporation and Philadelphia Gas Works Company. The SEC hearing date is expected to be set for January.

## New Canadian Natural Gas Export Proposal

Prairie Pipe Line, Ltd. and Pacific Northwest Pipe Line Corporation presented an entirely new "reciprocal plan" at the recent Calgary natural gas export hearings. The plan proposes to obtain a permit to export up to 200,000 Mcf per day from Alberta. This gas would be used in the Northwest, but would be insufficient to meet peak day requirements in the second winter. The request was limited to that figure in the belief that no more would be available for export initially. The "reciprocal" feature arises out of the fact that the applicants propose to contract with Panhandle Eastern Pipe Line Company and Trunkline Gas Supply Company to deliver up to 250,000 Mcf per day to Prairie at Windsor, Ontario.

Prairie would then build a line from Windsor to Montreal, serving London, Brantford, Hamilton, Toronto, Ottawa and other smaller Ontario communities.

## Dan E. Karn Elected Consumers Power President

Justin R. Whiting, formerly President of Consumers Power Company, was elected to the newly-created office of Chairman of the Board, and chief executive officer of the company, at the recent meeting of directors in Grand Rapids. Dan E. Karn, formerly first vice president, was elected President to succeed Mr. Whiting.

Dan E. Karn

Mr. Karn, active in public utility management since 1915, became associated with Central Illinois Light Company at Peoria, following graduation from Purdue University. In 1916 he was appointed superintendent of steam-heating in the Grand Rapids Division of Consumers Power Company. In 1919 he was transferred to the general offices at Jackson; in 1921 he was named assistant to the general manager. Appointed division manager, Kalamazoo, in 1927, he served in this capacity until 1931 when he became assistant general manager.

Mr. Karn was elected vice president and general manager of the company in 1933 and held that position until 1950 when he was named first vice president. He has been a director since 1933.

Mr. Whiting has been a director of Consumers Power Company since 1934 and president since 1941. Prior to the dissolution of The Commonwealth & Southern Corporation in 1949, he had served that company as President since 1940, when he succeeded the late Wendell L. Willkie.

## Walter Bender Elected Director of Ohio Edison Company

Walter Bender, President of General Fireproofing Company, Youngstown, Ohio, was elected a director of Ohio Edison Company at the recent directors' meeting in Akron. Mr. Bender has been connected with General Fireproofing Company since 1918. He became vice president in 1928 and president in 1946.

## C. T. Chenery Retires As Officer Of Scranton-Spring Brook

C. T. Chenery, chairman of the board of Scranton-Spring Brook Water Service Company, has retired as an officer and director of this company.

Federal Water and Gas Corporation recently disposed of all of its holdings of Scranton-Spring Brook Water Service and was liquidated December 31, 1951.

Mr. Chenery has been senior officer of Federal since its formation in 1926, and was responsible for the formation of Scranton-Spring Brook Water Service Company and its acquisition by Federal in 1926, since which time he has been senior officer of Scranton-Spring Brook. He plans, however, to retain his substantial holdings of common stock in this company.

Mr. Chenery plans to confine his business activities to the natural gas business and will continue as senior officer of Southern Natural Gas Company and Southern Production Company, Inc.

Rulison Evans, now president of Scranton-Spring Brook, will also serve as chairman of the board.

## Paul Peacock Is Granted Patent On Gas-Air Mixing Apparatus

United States Patent No. 2,570,373 has been issued to Paul E. Peacock, Jr., of Westfield, N. J. This patent covers a gas and air mixing apparatus designed for use with utility gas distribution systems or industrial plants. The system has automatic controls not dependent upon continuous electric utility power for operation. The system operates directly into the distribution system supplying propane-air gas without benefit of a mixed gas storage holder.

One of the chief advantages claimed for the system is that it is not dependent upon mixed gas storage. In systems where the arrangement has been used, the low pressure holder has been eliminated. In systems having a holder in bad condition, the holder can be abandoned and the system served by the patented arrangement.

Gas companies having systems based on Mr. Peacock's Patent serve: Montpelier, Vt.; Rock Hill, S. C.; Hudson, N. Y.; Waverly, N. Y.; Berwick, Penna.; and Lewisburg, Penna.

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## Transcontinental Completes New Jersey-Staten Island Submarine Crossing

Natural gas delivery from Texas to Brooklyn came closer when Transcontinental Gas Pipe Line Corporation completed laying 1,600 feet of 24-inch pipe for the submarine crossing of the Arthur Kill between New Jersey and Staten Island. A similar crossing of New York Harbor will extend the line from Staten Island to Brooklyn early next year, providing a second natural gas entry into New York.

Transcontinental employed a system not known to have been used before in the East. It consists of floating the pipe, by means of pontoons, just below the water surface. The entire length of pipe had been welded and bent to fit the river-bottom contours. As the pipe came into position, it was settled gradually into its under-water trench.

The line is protected from ships' anchors in the trench, dredged twenty feet below the bed of Arthur Kill, and by a heavy coating of concrete which also keeps it in place.

S. V. Collins, president, Collins Construction Company, is the submarine pipe line specialist who invented the system and supervised the laying at the Arthur Kill for Transcontinental.

## Super Inch Load Up To Near Capacity

With three recently-completed compressor stations operating, Pacific Gas and Electric Company's 500-mile Super Inch gas line began delivering 350,000,000 cubic feet of natural gas daily, Norman R. Sutherland, vice president and general manager, announced on December 26.

This is an increase of 150,000,000 cubic feet of gas per day over last winter's average daily delivery by the line, that runs from Topock, Ariz., to Milpitas, Cal.

In 1952, the line will reach its maximum of 400,000,000 cubic feet daily, 150,000,000 more than its rated capacity without the added compressors.

Situated along the Super Inch route at Topock, Hinkley and Kettleman Hills, the compressor stations, costing $12,000,000, are each designed to boost the line pressure from 500 pounds to 800 pounds. Gas entering the line at Topock reaches Milpitas in 42 hours, 18 less than before.

Together the three compressor stations have a total capacity of 44,820 horsepower, with Hinkley, eight miles west of Barstow, the largest with seven compressors rated at 17,500 horsepower. Topock has six rated at 15,000 horsepower, and Kettleman Hills, the northern-most station, has eight totaling just 12,320 horsepower.

## Gas Is Near Foot of List Of Fire Loss Causes

Gas and gas appliances stood 20th on a list of 25 causes of fire losses in the United States during 1950, according to a report recently issued by the National Fire Protection Association. Out of a total of 600,000 fires causing aggregate losses of $699,600,000 during the year, only 7,800 fires with total losses of $9,000,000 were attributed to gas and gas appliances.

Smoking and matches headed the list of fire causes last year, as being responsible for 93,000 fires and losses of $55,000,000.


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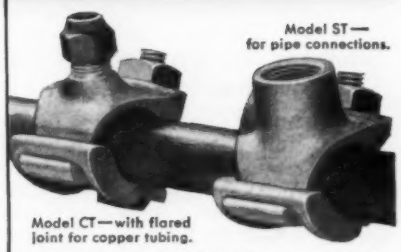


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## Southern Gas Association Executive Committee At Recent Houston Meeting

**The Southern Gas Association Executive Committee during a recent meeting in Houston.** (Seated left to right) **Carl H. Horne, Rheem Manufacturing Company; W. L. Woodward, Zenith Gas System, Inc.; Dean A. Strickland, United Gas Corporation; First Vice-President J. H. Wimberly, Houston Natural Gas Corporation; President L. L. Dyer, Lone Star Gas Company; Second Vice-President H. K. Griffin, Mississippi Gas Company; C. H. Zachry, Southern Union Gas Company; W. H. Ligon, Nashville Gas Company, and H. C. Webb, Oklahoma Natural Gas Company.** (Standing left to right) **Secretary J. L. Campbell, New Orleans Public Service Inc.; A. L. Roberts, Texas Gas Transmission Corporation; Dale E. Frieden, Zenith Gas System, Inc.; Treasurer H. V. McConkey, Southern Union Gas Company; E. L. Henderson, United Gas Corporation; R. A. Puryear, Jr., Alabama Gas Corporation; A. B. Parker, Hardwick Stove Company; Murray S. Hitchcock, American Meter Company, Inc.; Charles K. Oxford, Gas Light Company of Columbus; Harold F. Taylor, Oklahoma Natural Gas Company; Charley Lockhart, Jr., Bryant Heater Division, A.G.E., Inc.; Chas. F. Stubbs, Mississippi Gas Company; J. O. Jackson, United Gas Corporation; L. A. Farmer, Northern Oklahoma Gas Company; V. H. Luneborg, Arkansas Louisiana Gas Company, and H. R. Derrick, Alabama Gas Corporation.**

## Southern Gas Association 1952 Convention in Galveston

The Southern Gas Association Executive Committee meeting in Houston, Texas, recently, approved plans and program for the S.G.A. 44th Annual Convention, to be held in Galveston, Texas, April 28-29-30, 1952.

The general convention committee was organized with Dale E. Frieden, Zenith Gas System, Inc., chairman; Chas. F. Stubbs, Mississippi Gas Company, vice-chairman for gas companies; A. B. Parker, Hardwick Stove Company, vice-chairman for manufacturers; W. M. Wampler, Chattanooga Gas Company; H. R. Derrick, Alabama Gas Corporation; Harold F. Taylor, Oklahoma Natural Gas Company; J. O. Jackson, United Gas Corporation, and A. L. Roberts, Texas Gas Transmission Corporation.

## Industrial Atmospheres to be Topic at ASHVE Annual Meeting

A symposium on the control of industrial atmospheres and twelve papers in the fields of air cleaning, air distribution, warm air heating, building heat loss and heat gain and physiological research, will be presented at the 58th annual meeting of the American Society of Heating and Ventilating Engineers in St. Louis, January 28-30.

W. N. Witheridge, ventilation consultant to General Motors Corp., and chairman of the ASHVE technical advisory committee on industrial ventilation, will act as moderator of the symposium. Technical sessions will be held in the mornings and afternoons with the exception of Monday, the opening day, when the morning will be given over to committee meetings. Registration will begin on Sunday, Jan. 27, at the Statler. The council and various committees will meet also on Sunday.

Attendance is anticipated at more than 1,000 members.

## Rockwell Names R. J. Munn Ass't Sales Mgr.

A. Dixon, vice-president of Rockwell Manufacturing Company has announced the appointment of R. J. Munn as assistant sales manager of oil field products.

After three years in the Army Air Corps, Mr. Munn studied engineering at Texas A & M College. Recently he has been working as a sales engineer of the Nordstrom Valve Division of Rockwell's Houston district office, and before that was in charge of the Corpus Christi office for several years. Prior to joining Rockwell he worked as a roughneck in the oil fields and later was associated with Bethlehem Supply Company.

Mr. Munn will transfer his headquarters to the Rockwell home office in Pittsburgh, and in his new assignment will assist H. Gottwald, general sales manager of the Nordstrom Valve Division.

## American-Standard Reorganizes Sales Territories

A general expansion of the field sales force of American Radiator & Standard Sanitary Corporation went into effect January 1, D. D. Couch, vice president, sales, has announced.

Two additional supervisory sales districts, six new sales offices have been established and thirteen men have been promoted. The move provides more thorough coverage of territories and brings field management closer to customers.

Creation of the two new district offices in Cleveland and Kansas City, Mo., brings the total to six. These six districts will supervise the operations of the 28 sales offices located throughout the country.

## Rockwell Reorganizes Sales Department

The sales department of Rockwell Manufacturing Company will be reorganized, L. A. Dixon, vice president, announced recently. Five regional managers have been appointed, effective January 1, 1952.

P. C. Kreuch

J. W. Northcutt

The Eastern region will be under the direction of M. J. Harper in New York; the Central region under P. C. Kreuch in Pittsburgh; the Southern region under J. W. Northcutt in Atlanta; the Mid-Western region will be under C. K. Madison in Houston; the Western region under H. Boezinger in Los Angeles.

Rockwell will continue to maintain district offices in the major cities of the country as they have in the past.

## Roy Johnson to New York Cooper-Bessemer Office

The Cooper-Bessemer Corporation has expanded its New York sales engineering facilities with the appointment of Roy W. P. Johnson to that office.

Mr. Johnson is an engineering graduate of Kingston-on-the-Thames Technical College in England.

In the New York district he will consult with engineering firms in regard to the design and construction of major pipe lines, petroleum processes, allied refining and industrial applications in which Cooper-Bessemer equipment is used.

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## Robertshaw-Fulton Company Enters Electronics Field

Robertshaw-Fulton Controls Company has entered the industrial electronic measurement and controls field, through the acquisition of Fielden Instrument Corporation, Philadelphia, announced John A. Robertshaw, president. For the present, Fielden Instrument Corporation will operate as a wholly-owned subsidiary of Robertshaw-Fulton Controls Company. In making the announcement Mr. Robertshaw declared that the Fielden organization has made important progress in developing and making instruments in the electronic field. "The Fielden acquisition," he said, "will enable us to offer industry many combinations of control valves and regulators with electronic instrumentation and should enlarge our potential market."


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## GAS INDUSTRY CALENDAR

### January

16 GAMA Exhibition Committee, Uptown Club, New York.
16 NEGA Operating Division, Hotel Statler, Boston, Mass.
18 SGA Commercial Sales Section, Regional Conference, Oklahoma City, Okla.
17-24 National Home Appliance Exhibits, Navy Pier, Chicago, Ill.
20-24 National Association of Home Builders, Chicago, Ill.
21-23 AGA Home Service Workshop, Drake Hotel, Chicago, Ill.
24 AGA Residential Gas Section, Managing Committee, Drake Hotel, Chicago, Ill.
25 NEGA Heating-Air Conditioning Group, Sheraton-Biltmore Hotel, Providence, R. I.
28 AGA Residential Gas Section, Refrigeration Committee, Drake Hotel, Chicago, Ill.
28-29 AGA Rate Committee, Netherland Plaza Hotel, Cincinnati, O.
28-30 ASHVE, St. Louis, Mo.
29 AGA Residential Gas Section, Committee on Improving Domestic Appliances, Drake Hotel, Chicago, Ill.
31 Joint AGA-EEI Accounting Conference Planning Meeting, Deshler-Wallick Hotel, Columbus, O.

### February

1 Pennsylvania Gas Association, Sales Conference, Benjamin Franklin Hotel, Philadelphia, Pa.
7-8 AGA Sub-Committee, Approval Requirements, Domestic Ranges, Cleveland Laboratories, Cleveland, O.
8 NEGA Commercial Group, Hampshire House, Boston, Mass.
11-13 Joint AGA-EEI Taxation Accounting Committees, Shamrock Hotel, Houston, Tex.
21 AGA Great Lakes Personnel Conference, Palmer House, Chicago, Ill.
27-28 PCGA Sales-Advertising Section, Domestic Sales Conference, Los Angeles, Cal.
29 NEGA Industrial Division, Hampshire House, Boston, Mass.

### March

3-7 ASTM, Spring Meeting, Hotel Statler, Cleveland, O.
4-5 PCGA Sales-Advertising Section, Domestic Sales Conference, San Francisco, Cal.
5-6 PCGA Technical Section, Services Conference, Fresno, Cal.
10-15 National Association of Corrosion Engineers, Galveston, Tex.
24-26 ASME Spring Meeting, Seattle, Wash.
27-28 Oklahoma Utilities Association, Biltmore Hotel, Oklahoma City, Okla.
27-28 NEGA, Annual Meeting, Hotel Statler, Boston, Mass.
31–April 2 Mid-West Gas Association, Annual Meeting, Hotel Radisson, Minneapolis, Minn.

### April

2-3 PCGA Technical Section, Transmission Conference, Berkeley, Cal.
3-5 Florida-Georgia Gas Association, Florida LPG Association, Joint Meeting, Soreno Hotel, St. Petersburg, Fla.
4 Maryland Utilities Association, Annual Convention, Lord Baltimore Hotel, Baltimore, Md.
7-8 Eastern Natural Gas Regional Sales Conference, Residential Section, Hotel William Penn, Pittsburgh, Pa.
7-9 National Conference, Electric-Gas Accountants, Hotel Commodore, New York.
7-10 AGA Distribution, Motor Vehicles and Corrosion Conference, Benjamin Franklin Hotel, Philadelphia, Pa.
8-10 Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
15-17 PCGA Technical Section, Customers Service, Los Angeles, Cal.
16-18 AGA Sales Conference, Industrial-Commercial, Netherland Plaza, Cincinnati, O.
17-18 PCGA Accounting Section, Los Angeles, Cal.
21-23 Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.
23-25 New England Hotel-Restaurant Exposition, Hotel Statler, Boston, Mass.
24-25 Indiana Gas Association, Annual Meeting, French Lick Springs Hotel, French Lick, Ind.
28-30 Southern Gas Association, Annual Convention, Galveston, Tex.

### May

1-7 American Foundrymen's Society Exposition, Atlantic City, N. J.
5-9 AGA Commercial Gas School, Chicago, Ill.
5-9 National Restaurant Exposition, Navy Pier, Chicago, Ill.
8-9 Public Utilities Advertising Association, Hotel Radisson, Minneapolis, Minn.
12-13 AGA Natural Gas Department, Spring Meeting, Biltmore Hotel, Los Angeles, Cal.
13-15 Pennsylvania Gas Association, Wernersville, Pa.
21-23 GAMA Annual Meeting, The Broadmoor, Colorado Springs, Col.
26-28 AGA Production-Chemical Conference, Hotel New Yorker, New York.
27-28 PCGA Commercial-Industrial Sales Conference, Los Angeles, Cal.

### June

5-6 AGA Research-Utilization Conference, Hotel Statler, Cleveland, O.
8-12 Canadian Gas Association, Chateau Frontenac, Quebec City, Canada.
8-21 International Organization for Standardization, Columbia University, New York.
9-13 National Fire Protection Association, Annual Meeting, Hotel Statler, New York.
10 PCGA Commercial-Industrial Sales Conference, Portland, Ore.
16-17 AGA Rate Committee, Skytop Lodge, Skytop, Pa.
16-22 International Gas Conference, Brussels, Belgium.
23-24 Michigan Gas Association, Annual Meeting, The Grand Hotel, Mackinac Island, Mich.
23-27 ASTM, Annual Meeting, Hotel Statler, New York.

### July

7-13 National Home Appliance Manufacturers Exhibits, Atlantic City, N. J.

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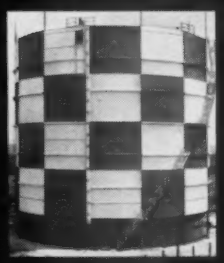

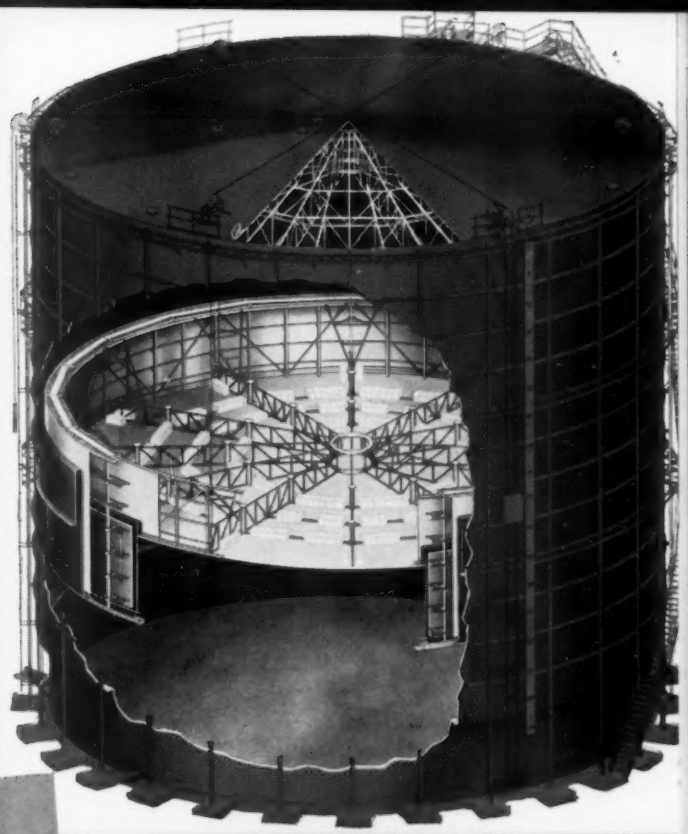

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